

# **Nigerian Markets for Livestock and Meat: Prospects for Niger**

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## ABBREVIATIONS

ABU	Ahmadu Bello University
CBN	Central Bank of Nigeria
CPI	consumer price index
CRED	Center for Research in Economic Development (University of Michigan)
CVO	Chief Veterinary Officer
FCT	Federal Capital Territory
FLD	Federal Livestock Department (1979-1988) (FMANR)
FLPCS	Federal Livestock and Pest Control Service (1988- ) (FMANR)
FMANR	Federal Ministry of Agriculture and Natural Resources
FOS	Federal Office of Statistics
GDP	gross domestic product
NLMA	Livestock and Meat Authority (1967-1979)
LGA	Local Government Area
MIS	Marketing Information Service (LMA)
MIU	Marketing Information Unit (FLD,FLPCS)
NAPRI	National Animal Production Research Institute (ABU)
NEPA	Nigerian Electric Power Authority
NMAP	Nigerian Meat and Associated Products
OPEC	Organisation of Petroleum Exporting Countries
SAP	Structural Adjustment Programme
SONERAN	Société Nigérienne d'Exploitation des Ressources Animales
SONITAN	Société Nigérienne de Tannerie
SONIDEP	Société Nigérienne des Pétroles
SNCP	Société Nigérienne de Collecte des Cuirs et Peaux

## INTRODUCTION

### 1.1 Niger's livestock trade with Nigeria

Livestock is Niger's largest agricultural export, measured in terms of foreign exchange earnings, second only to uranium among all exports. The land and manpower with which the livestock is raised have no better use in the near future. Niger's only strategy is to maximise its profit from this pastoral resource.

Nigeria is by far the largest importer of Niger's livestock, so trends in Nigerian livestock imports and protein consumption, and in its economy as a whole, are of great importance to the health of the Nigerien economy.

Niger also exports meat, trying to increase the value-added to this already valuable export. The more livestock which is transformed into meat before being exported, the larger the foreign exchange earnings for Niger, but exports of meat pale into insignificance beside livestock exports.

In Nigeria, Niger's businessmen must operate within a dynamic free market which is much less regulated than Niger's own. The Nigerian government's own description of the cattle and beef market almost a decade ago is applicable to all livestock and meat marketing today:

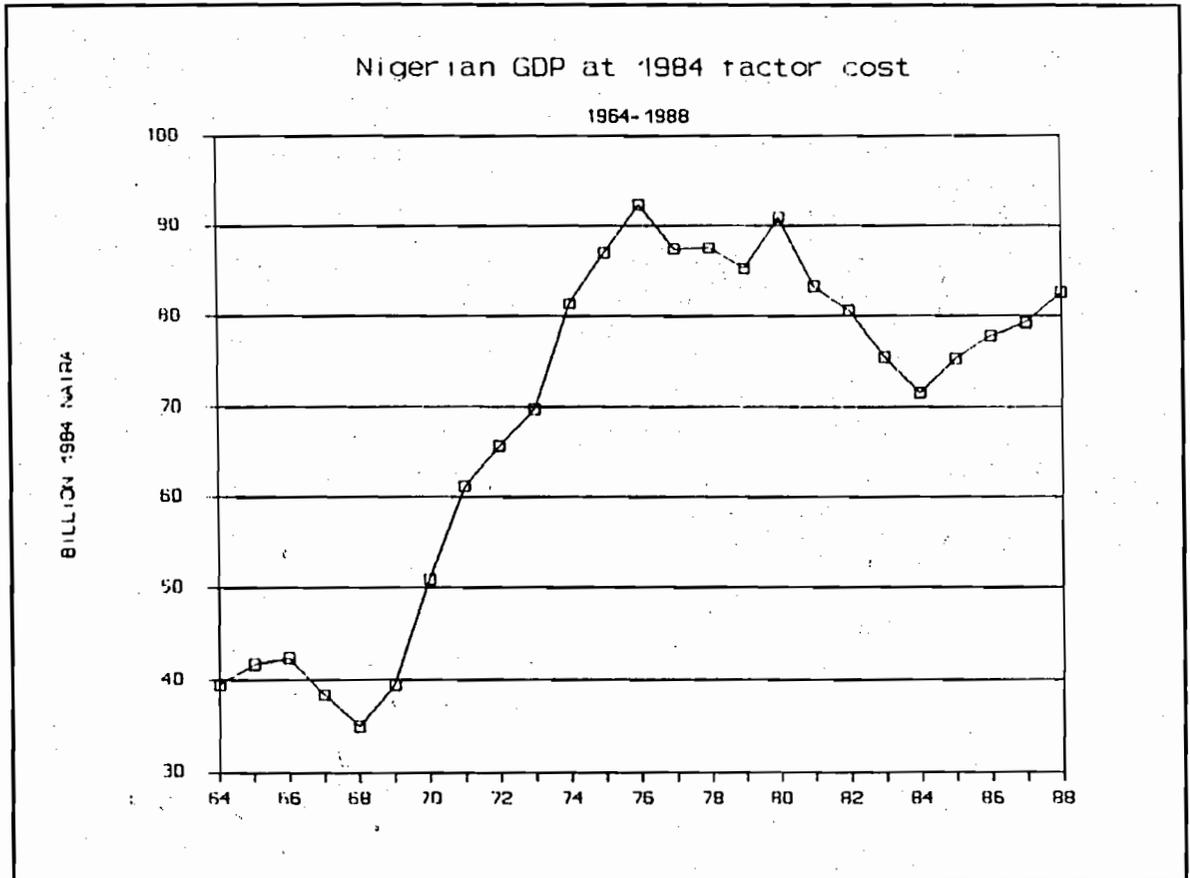
"The system of marketing live cattle and beef is well established involving multi-million naira investment and operating across international borders.... There are standard trade cattle routes and markets located at strategic places all over the country and government involvement is restricted to trade route regulations, international disease surveillance and control, and provision of rudimentary market facilities." (Federal Republic of Nigeria 1981c:129)

Often Nigerien traders sell animals just across the border, and allow Nigerians to capture some of the profit which they might have had from selling animals in higher-priced markets.

The purpose of this report is to examine the Nigerian market for livestock and meat, and to point out ways in which Niger might better profit from it.

## 1.2 The Nigerian economy

Trends in the overall Nigerian economy have greatly affected the livestock and meat trade. Some aspects of future sections depend on a familiarity with the larger economic context, so an overview is given here. Trends in gross domestic product (GDP) mirror major developments and are shown in graph 1.1.



Graph 1.1

Source: FOS

Nigeria emerged as an independent nation in 1960 as a leading agricultural nation, the world's largest exporter of groundnuts and cocoa. The population was around 40 million, with over 90 percent living in rural areas, except in parts of the southwest.

It also had a nascent oil industry which grew steadily over the 1960s until the civil war (1967-70), after which vigorous expansion ensued. By the early 70s, Nigeria was an oil producer of world importance. The extra revenue which this generated was multiplied by the fourfold increase in oil prices in 1973-74.

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Oil soon became the engine of growth, replacing agriculture. In fact, agriculture was neglected. Oil wealth boosted the value of the naira, and the government pushed it even higher by a quota system which rationed foreign exchange, leading to an increased inflow of imported goods but making agricultural exports increasingly uncompetitive on world markets. Lower prices led to decreased investment in agriculture and an increased migration to the cities where the oil wealth was concentrated. The relatively little new investment made in agriculture was increasingly characterised by an agribusiness approach: it was more capital intensive and more dependent on foreign machinery and other imported inputs. Agriculture slumped, but oil revenues were high enough to finance large food imports to meet the widening food deficit.

The government also decided to subsidise the price of petroleum products, particularly petrol and diesel which, in tandem with the relatively low price of imported vehicles and massive government investment in new tarred roads, led to many more cars and lorries on the roads. In turn, the availability of relatively cheap trucking sucked away a large proportion of the freight business from the aging railway system, which received little new investment.

There were occasions when the federal government became concerned that the spending was soaring out of control. This provoked periodic bans on the import of various goods. However, no attempt was made to attack the fundamental cause of the problem: the over-valued naira.

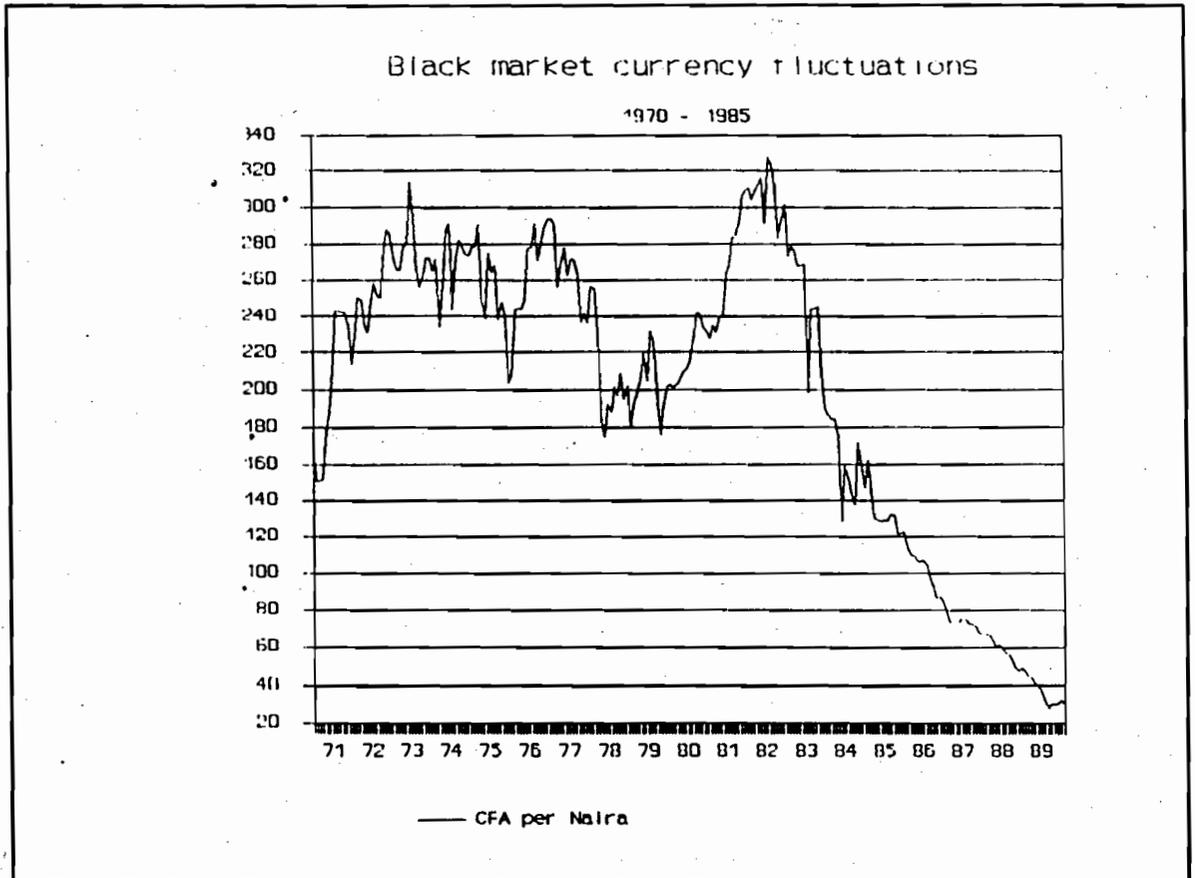
Outside Nigeria, and on a flourishing black market within the country, the naira was sold at a considerable discount from its official value.<sup>1</sup> However, even the black market value was high by historical standards and generally provided a considerable incentive to export animals to Nigeria. Graph 1.2 shows the black market rate of the naira against the CFA franc since 1971. High values are evident during the oil-boom years.

The real price of oil declined slowly after its initial dramatic rise, eating away at the revenue as Nigerians were learning how to spend it. However, prices rose to new heights in 1979 with the onset of the Iran-Iraq war.<sup>2</sup> This allowed the spending spree to continue for another two years until, by 1981, OPEC's control

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<sup>1</sup> It is this value which those in the informal sector, such as many of Niger's livestock traders, use in their business calculations.

<sup>2</sup> By 1980 federal government revenue had risen tenfold since 1970.



Graph 1.2

Source: Pick's Currency Yearbook; BCEAO

of the world market was over, at least for the time being. Prices and revenue slumped almost as quickly as they had risen. However, Nigerian expectations were still pitched at a high level and, despite cutbacks, spending continued at a high rate for much of 1982 and 1983 under the first civilian government since the 1960s (which found it politically untenable to make major spending cuts).

On 31st December 1983, General Buhari staged the coup which marks the beginning of the period of austerity which continues today under his successor, General Babangida. In all, Nigeria enjoyed ten full years of unparalleled growth which, though much was squandered, has left a legacy of increased industrialisation, urbanisation, education, mobility, and self-confidence which has markedly changed the country, and which still leaves a strong impact today.

Since Buhari took power, Nigerians' purchasing power has been greatly reduced as the naira has fallen to approximately one

teenth of its 1982 value on world markets, as graph 1.2 indicates. Imports have become more expensive and foreign purchases have dropped significantly. Under Babangida, the Structural Adjustment Programme (SAP) has aimed to reduce the country's dependence on the oil sector, to transfer many economic activities from the government sphere to the private sector, and to reduce subsidies. However, the subsidy on motor fuel remains essentially intact. The depreciation of the naira, formalised by its official devaluation against the dollar in 1986, has led to a rise in domestic agricultural prices, in line with the government's policy of promoting production in this previously neglected sector. This has brought about increased agricultural exports and a reduced need for agricultural imports, but has also put agribusiness at a relative disadvantage because of its need for expensive imported inputs.

Inflation since 1984 has averaged around 20 percent annually. In 1988 it reached over 50 percent, though this has slowed down dramatically over the last few months: consumer prices rose less than one percent between April and July 1989, and actually fell from June to July. This is likely linked to the stabilisation of the naira in international exchange markets, recently encouraged by tighter monetary policy.

DEMAND

Nigeria is a country of around 110 million people, almost all of whom eat meat. Which meat do Nigerian consumers prefer?

"Preference for beef is age old in Nigeria...." asserts Nuru, of the National Animal Production Research Institute (1982:14), while Ogundipe of the same institution insists that, naira for naira, Nigerian consumers prefer chicken to beef.<sup>3</sup> Each invokes consumer support for the focus of his own research. Discussing African consumers of a generation earlier, Mittendorf and Wilson (1961:28) note: "Mutton and pork are usually sold at higher prices than beef... Young, well-fattened lamb obtains the highest price. Meanwhile, Prescott-Allen (1982:15) maintains that Nigerians will pay a premium for bush meat over other meats. Which of these apparently conflicting viewpoints is correct?

### 2.1 Taboos and meat preferences by species

47 percent of Nigerians were Muslim in 1978 (Robinson 1982:155). They do not eat pork, donkeys, horses or dogs.<sup>4</sup> Other animals must have been slaughtered according to Muslim rites to be edible. This severely curtails the acceptability of frozen or chilled meat in Muslim areas: there is no way of knowing who slaughtered the animal or how. The Muslim population is concentrated in the north and west of the country. Even outside predominantly Muslim regions, most Nigerian consumers prefer meat from freshly-slaughtered animals to chilled or frozen meat. It is not clear how much this is due to taste, texture or a tradition of "hot" meat. Beyond these important exceptions, most animals are fair game for most Nigerians.

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<sup>3</sup> Interview, 27th July 1989

<sup>4</sup> "The prophet Mohammed himself never ate horseflesh, but he did not declare it unlawful; today there is some doubt among Muslims about the legal status of the practice.... [T]he restrictive view has gradually gained support.... In Nigeria Moslems strictly forbid horsemeat, and certain pagan or partly Islamicized groups... avoid it. Among the Yuroba of Ife, for example, horseflesh is eaten only by 'meaner people' who consume horses which have died of disease.... A generation ago the pagan Bassa of central Nigeria ate horsemeat, though the custom was being abandoned. The Warjawa pagans of northern Nigeria, on the other hand, continue to eat it at feasts celebrating the planting and harvesting of crops." (Simoons 1961:82-83)

Camel meat is probably the least favoured ruminant meat, but its consumption is sanctioned by the Koran for Muslims who find other meats too expensive. Until recently, few camels left the northern states, but consumption has recently begun to pick up further south following the general rise in the price of meat from 1985 onwards. Now they are slaughtered in the Zaria/Kaduna area and truckloads are also regularly taken to southern states.

There has been a similar recent increase in consumption of horses and donkeys, also for reasons of meat shortages. Peoples in southeastern Nigeria with no Islamic precepts, notably the Ibo, have turned to donkeys and horses as a source of meat.

The strongest preferences for particular meats are not so much linked to their taste, texture or juiciness, but rather to customs which require the slaughter of a particular type of animal. The slaughter of a ram accompanies Muslim baptisms. It is also encouraged for the Eid-el-Kebir (Tabaské) festival, though in Nigeria it is far more acceptable than in Niger for a Muslim to instead slaughter a buck for this festival, or to combine with six others to slaughter a bull. The sacrificial animal may even be castrated.

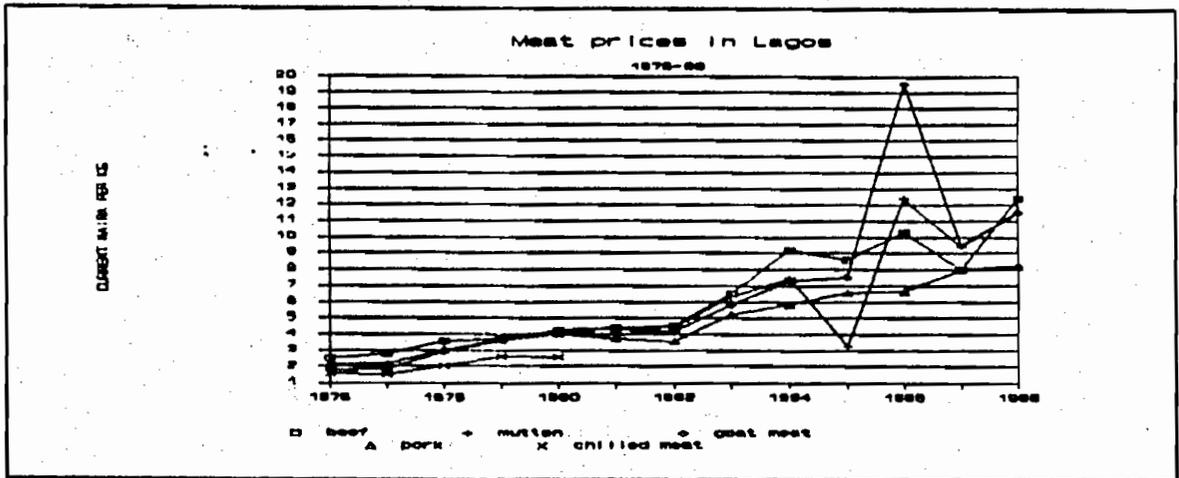
There is a Christmas peak in meat demand among Christians in the south of the country, and a lesser increase for Easter.<sup>9</sup> The Christian preference is for beef, though no rules govern the choice. Sacrifices of goats and dogs are required for ceremonial purposes among animist peoples, mostly in southern Nigeria.

Outside the taboos and strong preferences tied to religious ceremonies, the evidence for consumer preferences in meat come from price trends. Graphs 2.1-2.3 show the evolution of meat prices (per kilogramme, in constant 1975 naira) for Lagos, Enugu and Kano. Prices remain quite closely in step over a period of years during which the relative supply of the different meats must have varied considerably. We may deduce that consumers switched flexibly between meats from the more expensive to the less expensive: many people's preferences for given meats were not marked.

There are one or two exceptions. Mutton became noticeably cheaper in Lagos and Enugu during the 1984-85 Sahelian drought. Afterwards, goat meat became more expensive on these southern markets. Both these price divergences and the more general divergence of all prices on all three markets during and after the drought are attributable to fluctuations in supply between meats which were sufficiently severe to break the mould of easy substitution.

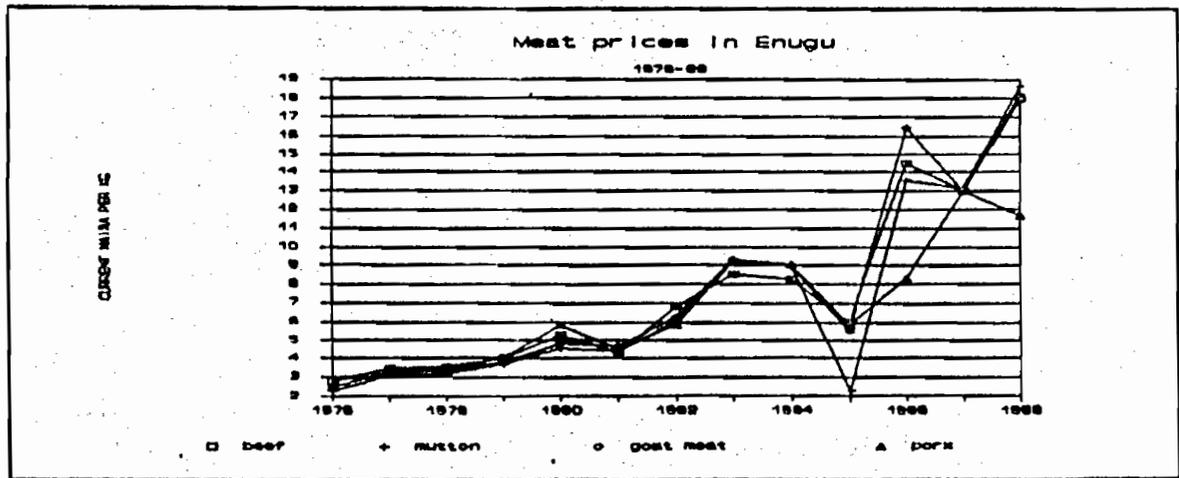
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<sup>9</sup> See also section 2.4.2 for further discussion of seasonality.



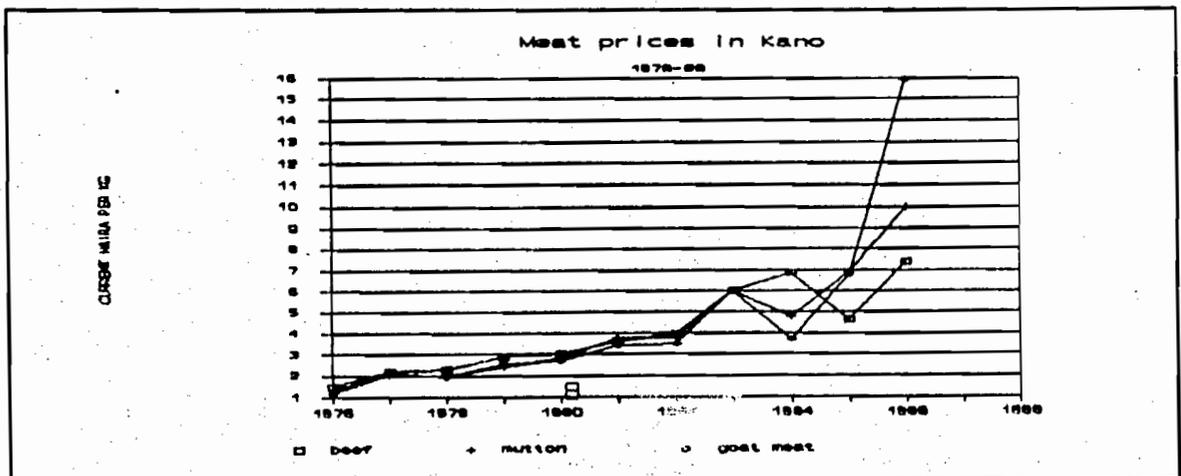
Graph 2.1

Source: FLD/FLPCS



Graph 2.2

Source: FLD/FLPCS



Graph 2.3

Source: FLD/FLPCS

It seems that the 1985 supply of mutton to southern markets was so high that after all elastic demand had switched to it there was still a glut on southern markets. At least in the short run, some "hard core" of consumers was reluctant to change from other meats, even when the price of mutton dropped to under half the price of other meats. However, by 1987-1988, at least in Lagos and Enugu, presumably under conditions of more stable supply and with consumers having had more time to change their tastes, prices seemed to be converging once more.

The Lagos meat price graph also shows us that chilled meat is consistently sold at a deep discount to fresh meat of any type (over 30 percent in 1980). Similarly, table 2.1 suggests that camel and horse meat respectively sell at discounts of slightly more than, and slightly less than, 10 percent to beef, goat meat, mutton and pork. In contrast, Prescott-Allen (1982:18) shows that bush meat sold at a premium of 74 percent compared to the average for beef, pork and mutton in Ibadan in 1975. Table 2.1 suggests that this pre-eminent position has diminished somewhat. In 1986, 1987 and 1988, the nationwide average premia were 0, 15 and 34 percent respectively (though these figures mix bush meat and dog meat prices). (FLPCS 1989)

## 2.2 Quality

In the mass market for meat, meat quality is not evaluated as it is in the much smaller elite market:

"Meat is seldom used separately in the meal, but is added to the stew that is used garnish the starch staple food. Therefore, there is little discrimination in price between cuts. The piece of meat that adds the most flavor and will maintain its identity in the stew is preferred. The animal with a fair amount of finish will, in fact, sell at a disadvantage in most markets...." (Ferguson 1967:49-50)

This often leads to crude butchery of carcasses, with the skin or hide of the animal sometimes left on the animal when it is chopped up into fragments, rather than the carcass being first skinned and then divided into a diversity of cuts, as occurs for the elite market.

The reasons for this seem evident. Most consumers are poor and are not prepared to pay for more expensive carcass preparation. Moreover, their cooking methods do not justify high quality meat. Southern consumers, in particular, may have become used to tough beef because much of it used to come from older Sahelian cattle which were selected by cattle traders as strong enough to undertake the thousand-kilometre trek to the coast. (Mittendorf and Wilson 1961:35)(Bureau d'Etudes Philippe Queyrane 1980:29)

Additionally, many other parts of the animal which many elite consumers would reject are eaten with relish by most Nigerians:

"Nothing edible goes to waste in the African market. The edible offals become a valuable "fifth quarter", selling at only slightly less per pound than flesh. The small soft bones are ground up and eaten and large bones are boiled to remove all meat and bone marrow. The head is picked clean, as are the leg bones and hoofs, which are boiled to remove all soft parts." (Ferguson 1967:50)

At independence, Nigeria's elite market would have been dominated by expatriate meat consumption. However, with the growth of a Nigerian middle class, this is no longer the case. Perhaps five percent of the population, mostly urban, have developed tastes in cuisine beyond the traditional stew. Meat can be tasted on its own which leads them put a premium on qualities such as texture, tenderness and juiciness. Their numbers are growing but most Nigerian consumers remain relatively indifferent to meat quality.

### 2.3 Quantity

The factors determining the demand for meat are: the number of consumers, the income per consumer, the price of meat, and the price of substitutes such as fish. The number of consumers and the income per consumer may be measured together by the gross domestic product (GDP). The distribution of the GDP over the population will also affect the demand for meat, but little information about this exists. Demand also varies seasonally because of the festivals discussed in section 2.1.

#### AVERAGE MEAT PRICES IN NIGERIA 1986-89

	Cost of meat at the butcher's stall (current Naira per kilogramme)			
	1986	1987	1988	1989
Eush/dog	8,85	10,77	15,04	
Livestock	8,86	9,38	11,25	15,54
beef	9,08	10,57	12,75	16,92
goat meat	10,04	9,23	12,06	14,50
mutton	8,91	9,24	11,75	15,00
pork	8,07	9,28	10,53	18,75
horse		9,57	10,44	
camel	8,19	8,38	9,99	

Source: FLD/FLPCS draft annual report for 1986-88.

1989 data collected in Kaduna (1st quarter data, prices for different cuts averaged).

Table 2.1

### 2.3.1 Income elasticity

It is generally believed that meat is a superior good, i.e. consumption rises with income. Ferguson (1967:58) concluded that in late colonial and early post-colonial Nigeria this was not so:

"[I]ndividual beef consumption increases when one moves to an urban area where he earns a cash income and beef is available. After the cash income is obtained and an urban food consumption pattern is established, the income elasticity for beef is very low.... Although Engel's Law leads us to expect a high income elasticity for beef, this is not so in West Africa. Several investigators have observed that food consumption patterns in West Africa tend to be stable over wide income levels.... Data from the [1959-60] consumer survey in Lagos indicated that low-income households purchased only fractionally less beef per capita than middle income households. On the other hand, expenditures for fish, pork, poultry, and eggs were highly income elastic.... This rather surprising finding has a logical explanation. Beef and beef by-products such as boiled hide are the urban dweller's cheapest protein food." (Ferguson 1967:58)

Ferguson (1967:63) estimates a figure of 3 percent as the annual increase in beef demand in Nigeria. McCoy (c1970:30) finds this figure to be "reasonable". This estimate was made for a period of relatively high economic growth: real GDP was growing at an average of 5.6 percent per annum between 1958-59 and 1966-67. (FOS 1970:99) This was lower than during the oil boom decade to follow, but higher than during the economic stagnation of the mid-80s. These figures suggest an income elasticity of demand for beef of 0.54, i.e. beef demand rising at about half the rate of income.

More recent study supports conventional wisdom. Adegeye (1975) calculated an income elasticity for boneless beef in Western State between 1961 and 1972 of between 1.3 and 1.4. This means that a ten percent in real (rather than nominal) income will lead to a 13 to 14 percent rise in the consumption of beef. He notes that this value is higher than other estimates for income elasticities for meat in Egypt and Sudan but lower than those for Kenya, Honduras and Jamaica.

### 2.3.2 Gross domestic product: the importance of oil

Nigeria is a fast-growing, populous country.\* However, population size itself does not guarantee a market for meat. Section 2.3.1 suggests that meat is a luxury consumption good: many poor consumers will buy little of it. To determine total demand for meat we would ideally integrate demand by income class for all Nigerian consumers, but this is not possible since the income distribution is not known. The alternative is to take aggregate income as a measure of the aggregate demand for meat.

Gross Domestic Product (GDP) is taken as a measure of national income. Graph 1.1 showed Nigerian GDP in constant naira from 1964 to 1988. Trends in GDP largely reflect the oil industry's ups and downs described in section 1.2. Future trends in oil output and prices are therefore important determinants of meat consumption.

At present Nigerian oil output is constrained by the quota allocated to it by the Organisation of Petroleum Exporting Countries (OPEC). Output is currently around 560 million barrels annually, higher than at any point since 1981, Nigeria's OPEC quota having been raised by 5.4% in June 1989, but this level is still only two-thirds of the maximum recorded output (in 1979). (FOS 1981a:83, 1986a:121) New commercial oil deposits are still being discovered and will be put into service in the near future. In 1988 three-quarters of wells drilled hit oil. (CBN 1989:29) In the short run there will be no difficulty in increasing oil production if OPEC allows this. However, Nigeria's ratio of reserves to production is relatively low. Despite the new oil strikes, its oil deposits are not thought likely to continue to yield oil at current production levels for more than a few decades. Moreover, domestic consumption, encouraged by extremely low prices, continues to absorb increasing volumes of petrol which could otherwise be exported.

However, Nigeria also has vast reserves of natural gas, mostly wastefully flared, now beginning to be harnessed. Around 25 percent of domestic energy needs are currently being met by gas, up from half that level in 1980. Nigeria has also begun to make the investments necessary to export liquified natural gas (LNG). Exports are due to begin in 1995. (Farqueur 1989:30) (CBN 1989:31) By 2000 LNG exports could be making sizable contributions to export earnings.

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\*The size and growth rate of Nigeria's population are remarkable. A 1987 population of 107 million is projected to grow at an annual rate of 3.0 percent to 157 million in 2000. By 2025, the figure is 286 million -- greater than the 1987 population of either the United States or the Soviet Union. (World Bank 1989: 214-215).

Between now and 2000, the big unknown is the price of oil. Prices have recovered unevenly from the lows of the early 1980s but stand far short of the 1979 peak. The long-term trend in real oil prices appears to be upwards as the world economy grows. Falls in the value of the dollar (in which oil sales are denominated), economic recession in OECD economies, and disagreements within OPEC could upset this trend but, as flows of easily exploited oil in non-OPEC countries dry up, increasing demand will meet reduced supply and tend to force prices up.

While dependent on the oil industry for significant growth in the near future, Nigeria's SAP is trying to reduce dependence on the oil sector. Other sectors are responding to the new competitiveness which a realistic foreign exchange rate has given them in world markets. GDP has grown modestly, continuously and fairly evenly since 1984, keeping just ahead of population growth. For reasons discussed in section 4.2, this has not ensured a growing demand for meat. However, it appears to have built a healthier economy which will increase its meat demand in the longer run.

### 2.3.3 Price elasticity

Adegeye (1975) estimates the price elasticity of demand for boneless beef in Western State between 1961 and 1972 as lying between -2.4 and -2.7. In other words, if the real price of beef (i.e. deflated by the consumer price index) rises by ten percent, consumption of beef can be expected to fall by between 24 and 27 percent. This is much higher than the estimate made by Rodriguez (1985) of around five percent for Zimbabwe for 1970-83.

### 2.3.4 Substitution

Fish is the most direct substitute for meat in the Nigerian diet. Eggs are a less direct substitute. Both are readily available in urban Nigeria and in most rural areas. Adegeye (1975:6) found a high correlation (0.78) between the price of boneless beef and the price of dried fish in Western State between 1961 and 1972.

He also deduced the cross price elasticity for beef with respect to fish to be in the range 2.5 to 2.7: a rise in the real price of meat by ten percent induces a 25 to 27 percent rise in fish consumption. The increased fish consumption is in addition to the reduction in meat consumption noted in section 2.4.3. The net effect of a real rise in the price of meat -- reduced meat consumption and increased fish consumption -- is a substitution of fish for meat. The reverse would occur if meat prices fall.

We would not expect the the markets for meat and eggs to be so closely linked.

## 2.4 Concentration of demand

### 2.4.1 **Urbanisation: spatial concentration**

The average annual growth rate of the urban population between 1980 and 1987 was 6.3 percent (compared to growth rates for the population as a whole of 2.7 percent from 1965 to 1980 and 3.0 percent from 1980 to 1987) and, by 1987, 35 million (33 percent) of Nigerians lived in urban areas. This provided an urban market approximately 28 times larger than exists in Niger.<sup>7</sup> (World Bank 1989: 224)

In the early 1980s, when private consumption was reaching its peak, each urban household spent just over twice what its rural counterpart did on meat, on average. (FOS 1985c:154-156) If we assume that urban and rural households are the same size, and remembering that one third of Nigerians live in urban areas, urban and rural expenditures on meat are approximately equal. In fact, urban households are probably much smaller than rural households, suggesting that the total urban expenditure on meat accounts for more than half of total Nigerian meat expenditures.<sup>8</sup>

### 2.4.2 **Distribution in time**

Seasonal demand depends on religious festivals (consumption), and investment of post-harvest agricultural surpluses. Eid-el-Kebir (Tabaské) rotates backwards through the seasons by ten days a year, so its effect on "seasonality" is out of phase with that of demand for Christian festivals, notably Christmas. In Niger, male sheep and goats are universally preferred to other animal categories for Tabaské sacrifices to the extent that domestic demand for cattle flags at that time of the year, whereas in Nigeria male cattle are also acceptable and their prices rise in unison with male sheep and goats, though to lesser price peaks.

In northern Nigeria, farmers' post-harvest surpluses are often invested in livestock (particularly small stock) which is then sold off later in the agricultural year. Animals may be resold to finance field preparation and sowing of seed or to pay for food in times of shortage before the next harvest. (van Schillhorn, 1983:308) Sales in the rainy season may benefit from

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<sup>7</sup> The figure of 33 percent is roughly double the 18 percent (1.26 million) given for Niger in the same source. However, "urban" is defined in many different ways and the comparison should not be made too closely.

<sup>8</sup> Rural households may have consumed the same amount or more meat than urban households. However, the proportion which they obtained through the market, i.e. via expenditures, was less.

higher prices due to the absence of transhumant herds from markets, both in Niger and Nigeria.

Urban demand may have determinants on a shorter time scale. For instance, with the increased availability of refrigerators, middle-class consumers who are prepared to buy chilled meat are more able to do so. Meat demand need no longer be so constrained to daily purchases. The proportion of Nigerian homes with fridges is not known. A second example is the measurable changes in urban meat demand within months, depending on when salaries are paid. (Mittendorf and Wilson 1961:26)

## DOMESTIC PRODUCTION

Livestock's share in Nigerian GDP was 6 percent in 1988, as part of an agricultural (farming, livestock raising, forestry and fisheries) sector which represented 39 percent of GDP. (CBN 1989:15)

### 3.1 Ruminant herd sizes and production

The Nigerian national herds of cattle, sheep and goats are the largest in West Africa, though the exact size remains a subject of debate. One FLPCS expert estimates current populations to be: 13 million cattle, 8 million sheep and 28 million goats.<sup>7</sup> Perhaps 60 percent of these animals are concentrated in the four states which have frontiers with Niger: Sokoto, Katsina (formerly part of Kaduna), Kano and Borno. Together with the other northern states of Bauchi and Kaduna, they account for three-quarters of the ruminant population. In addition, almost all the country's camels are to be found in these states.

Annual offtake from the cattle herd is estimated at 7-10 percent, or 0.91 to 1.30 million head. For small ruminants, the figures are 25 to 35 percent and 9.0 to 12.6 million. (Mittendorf and Wilson 1961:11) (Ferguson 1967:46) (Bishop 1972:3) (FLD 1987:12,14) Taking into account relative carcass sizes, small ruminants appear to contribute approximately 50 percent more than cattle to national meat production. However, most small ruminants are consumed near where they are raised, partly for ceremonial feasts; relatively few are marketed.

In 1988, livestock production increased by 2.5 percent over the 1987 level. Output of beef, mutton and goat meat were reported to have increased by 14.7, 8.0 and 1.4 percent respectively. (CBN 1989:17) This is despite a rinderpest epidemic which severely reduced cattle numbers in 1983 and the 1984-85 drought which had a lesser effect on the population of all animals in the north.

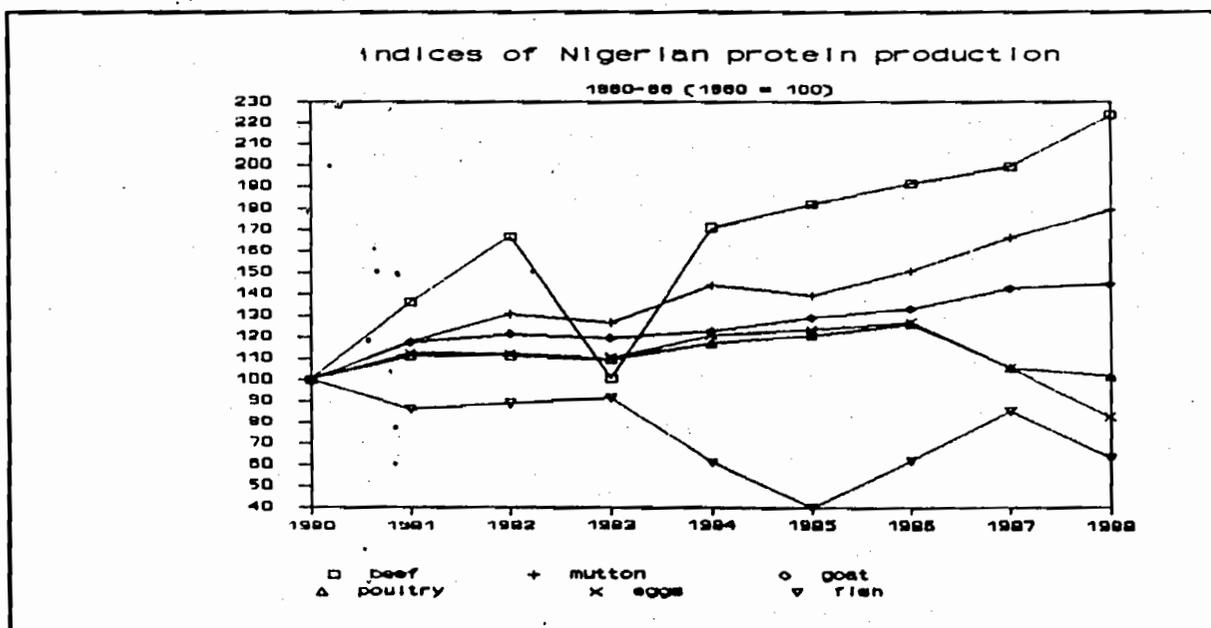
Indeed, there has been an upward trend in domestic ruminant meat production throughout the 1980s. Official statistics displayed in graph 3.1 suggest that beef production has increased from 116,000 tonnes in 1980 to 260,000 tonnes in 1988, a rise of 124

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<sup>7</sup> Conversation with Dr. M.A. Farouki, Senior Technical Controller, FLPCS, Kaduna. In addition, there are probably about 17,000 camels, 250,000 horses, 700,000 donkeys, 130 million poultry and an unknown number of pigs. (FLD 1987:17 and Dr. Farouki)

percent. Over the same period goat meat output has risen from 144,000 tonnes to 209,000 tonnes (+45 percent), and mutton production from 45,000 tonnes to 81,000 tonnes (+80 percent). Compare these increases with the 31 percent increase in human population between 1980 and 1988.<sup>10</sup> In contrast, Nigerian ruminant production in 1988 was lower than than in 1980 while its human population increased by 27 percent in the interim.

The increased production is due both to increased numbers of animals, particularly outside the traditional livestock producing zone (section 3.3), and to increased productivity (section 3.4).



Graph 3.1

Source: See footnote 10.

### 3.2 Technical details of animals marketed

Animals marketed may be classified into four categories: breeding stock; healthy, fat, mature males; young males destined for animal traction; and a variety of less desirable animals. In major livestock-raising zones, some breeding stock -- heifers and fertile cows -- may change hands via the market, though livestock raisers are concerned about pedigree and disease, over both of which they may have little control in the market. These markets

<sup>10</sup> Data for 1980-86 tabulated by Dr. Peter Okaiyeto of ABU from CBN annual reports and UBA Monthly business and economic digest, 9:8, August 1986; data for 1986-88 from CBN (1989:18).

also sell young males destined for animal traction. Elsewhere little stock for breeding or traction is sold on the market.

The other two categories are destined for immediate slaughter. The poorer quality animals -- thin, ill and/or old -- are seen as best dispatched locally with a minimum of delay. The higher quality animals -- mostly the healthy, fat males -- are sought after to be sold on the large consumption markets. Thus the average weight of animals on southern markets is higher than on northern markets, and their health is better. In consumption markets, only animals destined for slaughter are for sale.

Data from the 1960s collected by Ferguson (1967:50-52) provide the following average liveweights for slaughter cattle: Maiduguri 280 kg, Kaduna 320 kg, Ibadan 340 kg. The average Maiduguri liveweights are reported to have varied from 260 kg early in the third quarter to 300 kg in the first quarter, i.e. plus or minus seven percent. The variations in Maiduguri, subject to the greatest seasonality in Nigeria, may be expected to be the limits of seasonal liveweight variation in slaughter cattle for Nigeria as a whole.

These figures suggest that Ibadan cattle were 21% heavier than Maiduguri cattle and 6% heavier than Kaduna cattle. However, Ibadan cattle in the 1960s were divided into "foot cattle" and "train cattle". Ferguson estimates that the average weight of train cattle as close to 360 kg, making them 29% heavier than Maiduguri cattle and 12% heavier than Kaduna cattle. Today's trucked cattle should be little different from the "train cattle". A figure of 20% is thus perhaps the best average figure for the extra weight of southern over northern slaughter cattle.

In the past the rationale for sending the heavy animals south was that they would best handle the rigours of the long trek. Trekking has since faded into insignificance, and with it that rationale for the selection of heavier animals. Nonetheless, it seems that by choosing heavy animals the trader also maximises the liveweight he can transport by truck, and so this assumption is still valid.

Only about half the liveweight is meat, though the ratio can vary from around 40 percent for a very thin animal to around 60 percent for a very fat one. Bishop (1972:4) notes that the Zebu cattle from Niger and northern Nigeria seldom produce carcasses which weigh more than 150 kilogrammes, that improved breeds under intensive production systems can attain 200 kilogramme carcass weights, and that dwarf, trypanotolerant Taurin breeds in the south produce carcasses averaging less than 100 kilogrammes.

There are difficulties in determining whether small ruminants for slaughter are heavier in the north or south. The same selection of high-quality, heavy animals is made in northern markets for

shipment south. We may assume that the weight differences between northern animals slaughtered in north and south to be approximately the same as for cattle: 20 percent. However, there are also southern dwarf breeds of sheep and goats. They are mostly consumed in rural areas: the larger the southern urban market the lower proportion of dwarf sheep and goats presented for sale. Proportions of southern to northern animals need not remain constant. The average weight of the mixture slaughtered is not known.

Francis (1988:15) tabulates mean liveweights for 867 sheep and 12860 goats sold in one district in southwestern Nigeria. Northern sheep (26.0 kg) were heavier than southern sheep (19.6 kg); northern goats (15.6 kg) were heavier than southern goats (12.4 kg). Southern rams (20.2 kg) were slightly heavier than southern ewes (19.6 kg) but, for all other species/breed combinations, the opposite was true: northern sheep (M:F = 25.7:26.8); northern goats (M:F = 14.1:19.5) and, most noticeably, southern goats (M:F = 9.2:15.7). The differences in weight by sex correspond mostly to variations in age at time of sale.

Unfortunately, Francis' detailed data does not include weights for northern animals sold for slaughter in the north. Nor do they provide us with an estimate for the overall proportion of southern to northern sheep and goats slaughtered in the south as a whole, or even for the urban south as a whole, though he does indicate that it increases just before Muslim festivals.

### 3.3 Production by ecological zone

#### **3.3.1 Northern Nigeria: savanna and Sahel**

The north produces most of Nigeria's livestock and is the largest net-exporting zone to the rest of the country. Its livestock population is composed of a sedentary component, a component which outmigrates south during the dry season, and a component which immigrates from Niger, also during the dry season. Its population thus stays roughly constant across the year at about 70 percent (9 million) of the country's estimated 13 million cattle.

The northern zone's pre-eminence in livestock production is largely due to the widespread absence of the tsetse fly. This fly spreads trypanosomiasis which is fatal to many breeds of most domesticated livestock species. Its prevalence increases from north to south.

In 1966, Northern Nigeria<sup>11</sup> produced in the form of livestock more than 250,000 tonnes of meat and offal, imported from Niger and Chad less than 70,000 tonnes, but exported to southern Nigeria or elsewhere only 95,000 tonnes. Thus net exports were slightly more than 25,000 tonnes, or 10 percent of production. (République Française 1969:220) With its population growth rate of 2.5 percent per annum, it was not clear that northern Nigeria would remain a net exporter.

Livestock production has grown since then to allow the region as a whole to continue to produce a net surplus in most years. However, extensive herding over much of this zone has come up against constraints of available natural pasture. Livestock production is thus limited by overgrazing in many areas. In Kano State, with 11 million inhabitants and perhaps a million cattle, livestock raising has, of necessity, become a more intensive business.

Study of official Kano State data from July 1988 to May 1989 for livestock imports (from Niger) and outflows (to the rest of Nigeria) suggests that it is close to becoming a net importer of cattle: the net outflow was about 4 percent of estimated offtake from the state herd. There is little doubt that it is a net camel importer: imports outweigh exports by a factor of six. However, it still seems to be exporting sheep and goats in substantial numbers, though this may only be an illusion due to poor recording of small ruminant imports on the hoof. (See section 4.1.1.) Other northern states still export substantial quantities of cattle, sheep and goats to other parts of the federation.

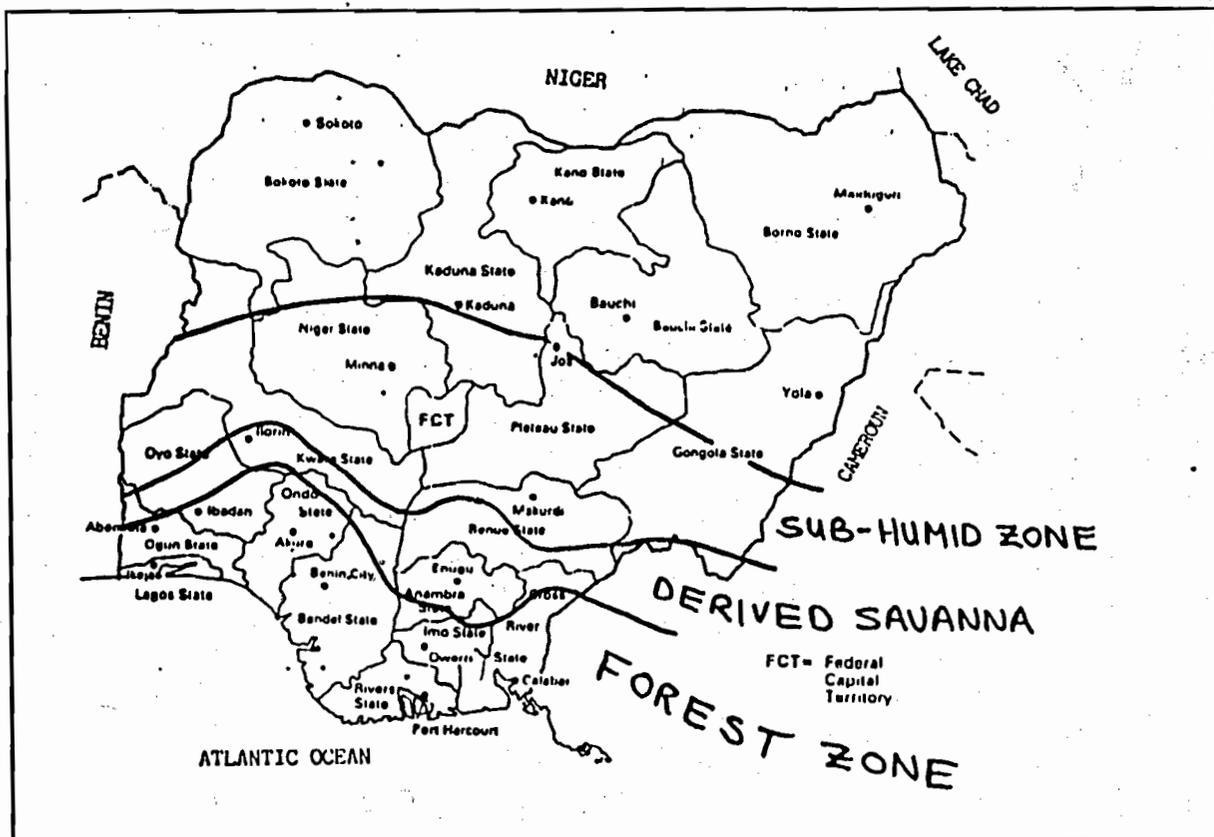
### 3.3.2 The sub-humid zone and the derived savanna

A significant development in the livestock sector is the greatly increased use being made of the country's middle belt or "sub-humid zone". (See map 3.1) This woodland savannah is relatively underpopulated, both in terms of people and livestock. Until relatively recently, few livestock were to be found there because of tsetse fly infestation which led to a high mortality from trypanosomiasis in most ruminant breeds. Campaigns to eradicate the tsetse from particular areas, combined with a general

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<sup>11</sup> "Northern Nigeria" refers to the administrative unit of Nigeria under British colonial rule and the early years of independence, while "northern Nigeria" refers to the same geographical region after it was broken into states. No comparable "Southern Nigeria" ever existed. Today the region is composed of the following states: Bauchi, Benue, Borno, Gongola, Kaduna, Kano, Katsina, Kwara, Niger, Plateau, Sokoto; and of the Federal Capital Territory. It accounts for just over half the population and for eleven of the twenty-one states.

increase in the human population and the consequent conversion of bushland into farmland, have led to a reduction in the incidence of trypanosomiasis. Though not eradicated throughout this belt, the risk from disease is low enough for many livestock raisers, traditional and intensive, to have moved into the area. This is a vast area, covering Kwara State; southern Niger, Plateau and Gongola States; northern Benue State; and the Federal Capital Territory.



Map 3.1

The sub-humid zone is now estimated to have cattle population of three million, mostly present year-round due to the high rainfall (roughly between 900 and 1500 mm annually) spread fairly evenly over the seasons. This opening up of the southern frontier has led to a southerly shift in the centre of mass of the national ruminant herds and to the creation of a second sizable net livestock-surplus zone. The consequent increase in herd size may have contributed as much as increased productivity to increased total animal production.

Further to the south lies the "derived savannah" in former rain-forest, where trees have been cleared for farming. A much more modest livestock immigration has occurred here, due to a greater incidence of trypanosomiasis and higher population densities.

This zone includes the north of Oyo, Ondo and Anambra and southern Benue. Fulani have even settled in northern Bendel, one of the coastal states.

### 3.3.3 The forest zone

In the southern regions smitten by trypanosomiasis there are dwarf, trypanotolerant breeds of cattle, sheep and goats. Goats greatly outnumber sheep and cattle. These animals are not herded but rather free-roaming around villages with a minimum of inputs and a high mortality. For sheep and goats mortality is largely attributable to peste des petits ruminants. Okali and Upton (c1984:70) and Francis (1988:3) disagree whether southern sheep and goats are kept mainly for sacrifices during frequent local ceremonial sacrifices or are raised mainly for sale. Both species, particularly the goats, do play a commercial rôle but are easily outnumbered in southern urban markets by small ruminants trucked in from further north. Very few of the dwarf cattle are marketed; they seem very much to be kept for ceremonial sacrifice. This a large net importing zone.

## 3.4 Production systems

### 3.4.1 Traditional production of cattle and sheep

Much of Nigeria's cattle and sheep population is held by traditional Fulani and Shuwa herdsmen or is herded by Fulani for sedentary investors. The animals are raised extensively -- with few inputs other than labour, grass and water -- for their dairy production which is mostly consumed domestically. They also act as stores of wealth. Nuru (1982:13) estimates that traditional herders own about 80 percent of Nigeria's cattle.

Traditional livestock raising used to be mainly confined to northern Nigeria's savanna and Sahelian zones. Nowadays many of Fulani are to be found in the middle belt and even in the derived savanna where they account for most animal husbandry. In this sparsely-populated region they face fewer of the confrontations with farmers which have always plagued extensive livestock rearing.

Traditional herders were formerly transhumant but are becoming progressively more sedentary. 7.8 million cattle (60 percent) were estimated to be owned by "non-nomadic" traditional households in 1984 (FOS 1985d:22-23), suggesting that only about 20 percent of the national herd is raised by transhumant households (in some loose sense of the word).

They are also adopting a more intensive approach to their animal husbandry. Their animals remain largely reared for domestic dairy production, but the level of veterinary inputs and supplementary fodder is increasing. The average product of these

evolving systems reaching the market is still far from fat, but there exist many households or small feedlot industries capable of finishing the animal for the urban market.

Cows and heifers -- the reproductive core of the herd -- are sacrosanct, but there is no social stigma against the sale of stock not essential to control over the means of reproduction: mature males, females of low reproductive potential, and sick or otherwise undesirable animals. Indeed, the hundreds of thousands sold each year are the main domestic source of supply of trade cattle and sheep.

Traditional supply to the market is a function of the herder's demand for money to meet immediate needs, and is not tailored to maximise meat output to the urban market. The timing of sales need not correspond to a period of high prices in the market.

"[T]he buyers must fight the unwillingness of the sellers to sell during the good grazing period and their tendency to sell only when there is a need for cash.... [T]he herdsmen have not yet learned to market cattle in advance of cash requirements." (Ferguson 1967:65)

#### 3.4.2 Commercially-oriented production of cattle and sheep

As non-herding folk became interested in livestock as an investment, they began to hire Fulani herdsmen to look after their cattle or sheep on the open range. These investors are business-oriented, looking for investments which will yield them a high profit, rather than meat or dairy products for their own consumption. Not knowing how to raise livestock themselves, they did not try to change the traditional herding practices, but did alter the structure of the herd to produce more of the mature males which the large consumption markets particularly reward.

The last decade has seen the emergence of a new breed of livestock raisers who want to control production more directly. Composed mostly of retired senior civil servants and military officers, members of this group obtain land and use it for ranching or feedlot fattening. Production is dependent on a high level of supplementary feeding, of agricultural or industrial by-products, of cereals, or of fodder crops which they often grow themselves. (See section 3.7) Moreover, the level of veterinary inputs is higher than for traditional systems. Productivity -- as measured by growth rates, fertility and mortality -- is significantly higher. As yet, these producers account for less than five percent of Nigeria's herds of cattle and sheep, but this is a burgeoning subsector.

Commercial investors are attuned to price trends, adjusting their sales of animals (and, for the intensive systems, purchases of feedstuffs) and to try to maximise benefits. These are beef and

utton-oriented operations, with little or no dairy component. They are attracted to arbitrage possibilities which tend to even out seasonal and inter-regional fluctuations in prices.

The relative underpopulation of the sub-humid zone makes land easily available for prospective ranchers. This means that a high proportion of private ranches is to be found in this belt where they are conveniently located to sell to a choice of markets to south and north.

#### 5.4.3 Production of goats and other species

Goat production is the most widespread type of animal husbandry in Nigeria, mostly carried out in farming and urban households. The goats produce milk and meat for domestic consumption and act as stores of wealth for those outside the formal economy.

A lower proportion of goats is marketed than of cattle and sheep. Many of those marketed do not leave the local rural area. As for other ruminants, the heavier animals in better health more often find themselves in final consumption markets.

Camel production is a relatively minor activity in Nigeria. Most slaughter camels come from Niger. Horses and donkeys are also raised in northern Nigeria, though not with the meat market in mind. None of these species is raised intensively.

#### 5.5 Fish and poultry production

Fish and poultry supply -- protein sources in direct competition with ruminants -- has been adversely hit by Nigeria's structural adjustment.

The domestic fishing fleet was greatly expanded during the oil boom, but its nets and spare parts are not locally-produced. The present climate of scarce foreign exchange thus severely curtails fishing capacity. Some offshore fishermen illegally sell fish to foreigners on the high seas, presumably in exchange for hard currency to help maintain their equipment. In addition, there are fears that overfishing is depleting the shoals in the long term. Fish production declined by 25.8 percent in 1988 compared to 1987; the 1988 catch of 357,200 tonnes was only 63 percent of 1980's 563,000 tonnes.<sup>11</sup>

A large proportion of Nigerian poultry production fast became an agribusiness during the oil boom. As such it bought in feeds, usually locally produced. However, the major input used to produce these feeds is fertiliser the government subsidy on which is

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<sup>11</sup> Sources: Akerele (1979:242), (CBN 1989:17-18) and compilation by Dr. Peter Okaiyeto (see note 9).

being steadily reduced, leading to higher prices. The manufactured equipment for factory farms and the veterinary inputs necessary when birds are kept in close proximity have also increased in price. Output of poultry meat dropped by 3.6 percent between 1987 and 1988, from 56,000 to 54,000 tonnes, following a 16.4 percent drop in the previous year. 1988 production was two percent greater than the 1980 output. Egg output reacted even more severely to the high costs falling by 16.8 percent (1986-87) and 21.6 percent (1987-88). Production dropped 22 percent from 332,000 in 1980 to its 1988 level of 260,000 tonnes.<sup>12</sup>

Capital-intensive production systems, but particularly those with a high foreign-exchange component to their inputs, have seen their costs rise steeply over the duration of SAP. In contrast, ruminant production depends much less on marketed inputs and almost not at all on imported inputs, and has flourished.

### 3.6 Meat production

The meat from most livestock slaughtered in Nigeria is marketed and eaten on the day of slaughter. However, drying, chilling or canning to preserve meat for wider marketing are other options which have been pursued.

#### 3.6.1 Dried meat

Ferguson (1967:34-37) describes the dried meat industry centred on Nguru, a railhead in northwestern Borno State, not far from the Niger border. It flourished from the 1940s until at least the early 1970s, but it is not clear to what extent it still functions.

"[Most cattle] slaughtered in the north are young stock, cull cows, and animals in poor condition... The beef industry has developed an ingenious method of marketing the meat from even these cull cattle by producing a dried meat for southern consumption. The meat is flayed, boiled, and dried over a smoking wood fire. The finished product looks like a charred chunk of roast and weighs 2 to 3 ounces [50 to 75 grammes].... [The dried meat] is shipped without refrigeration to Western Nigeria. Most of the meat is wholesaled through the Ibadan market from where it is distributed to most Western Region and Lagos markets.... The small chunks of meat may be added to the stew or eaten as a snack during the day." (Ferguson 1967:35)

"[D]ried-meat production has spread to most of the north where there is a surplus of cull cattle.... [but t]he value of the dried-meat trade as a market for not only cattle but

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<sup>12</sup> See previous footnote.

also sheep, goats and even camels has not been realised. It is estimated that 90 percent of the final product is beef." (Ferguson 1967:35)

Three kilogrammes of flesh are required to produce one kilogramme of dried meat. (Ferguson 1967:35, Adegeye 1985:5) Thus one thin animal produces about 25 kilogrammes of dried meat. Ferguson (1967:36) calculates that about 126,000 head of thin cattle were converted into about 3000 tonnes of dried beef annually between 1960-61 and 1964-65, accounting for over a quarter of all animals slaughtered in Northern Nigeria. In the late 1960s the trend was towards a growth in this trade.

### 3.6.2 Tinned and chilled/frozen meat

Ferguson (1967:35), McCoy (c1972:32) and Bishop (1972:23) describe private meat-canning factories in Northern Nigeria in the 1960s and early 1970s. Like the dried meat processors they also looked for cull cattle. One company, the Nigerian Canning Company in Kano slaughtered 26,000 cattle in the 1964-65 fiscal year to produce corned beef and other tinned products. It is not clear on what scale this type of activity continues today.

Nigeria's producers of "cold" meat dealt with 5000 tons of meat or 39,000 head of stock in the late 1960s. (Walker c1970:25)

### 3.7 Fodder market

As Nigerian livestock raising has become more intensive, so the market for livestock fodder has developed. Many agricultural by-products, such as bean leaves and stalk, are often bulky, offering relatively low nutritional value per unit volume. The cost per calorie of transporting them is high, so they tend to be sold in rural markets near the point of production. Cereals such as maize and sorghum may be used for feeding animals if prices are low, though as in Niger, millet is retained entirely for human consumption.

In contrast, most industrial by-products are fairly dense and are often produced in cities, and so are the subject of longer distance trade. These include groundnut and cotton seed cakes; rice, maize and wheat brans; brewers' dried grain; and molasses. Many of these products may be purchased directly from the brewery, oil mill or factory. In addition, there are many companies which trade in these commodities, as a glance at the phone book will confirm. The FLPCS's Market Monitoring Unit follows price trends in animal feedstuffs.

The recent relatively low value of the naira renders Nigerian by-products attractive exports. It is not known whether Nigerian fattening operations have been importing them to keep down their costs of production.

IMPORTS

Being unable to meet domestic demand for meat from its own production, Nigeria imports both livestock and meat. The livestock comes exclusively from neighbouring countries. The meat comes mostly from overseas. Both flows have existed for the entire colonial and post-colonial period, albeit with periods of greater or lesser intensity.

4.1 Livestock imports

Niger is the largest exporter of livestock to Nigeria. Chad supplies almost as much. Other suppliers are Burkina Faso and Mali, but their share in Nigerian imports is generally less than five percent, much less when exports to Nigeria are less profitable (when they may turn to the Ivoirien market).<sup>13</sup>

4.1.1 Accuracy of livestock export/import data

Much livestock is exported illegally from Niger. It avoids customs points in order to escape export and other taxes. Nigerian livestock export data should be treated with some circumspection.

Animals imported into Nigeria are not subject to import taxes, though they are required to be vaccinated if they arrive without vaccination certificates. Thus Nigerian customs officials take no interest in livestock imports; the monitoring of incoming trade livestock is left entirely to government livestock staff.

Most imported animals come to recognised border markets, are sold, and are then loaded into trucks. Trucks tend to congregate at these nodes on market day. Finding one on non-market days is more difficult. This channelling of livestock through a single point at regular intervals gives Nigerian livestock agents an easier job of tracking flows than when trekking was more prevalent. If the owner of a herd of trade animals does not intend to sell them at the border, he still is likely to arrive on market day in order to find a lorry in which to take them south. Even if a trade herd arrives on a non-market day, the sense of secrecy which exists on the Nigerien side of the border does not exist on the Nigerian side. The worst that can happen is that livestock officials can charge one naira per head for vaccinations if the animals do not have appropriate certificates. So

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<sup>13</sup> Appendix 2 contains FLD tables of animal imports by country of origin for 1984-86.

traders have no incentive to avoid letting their animals be counted.

Thus we would expect Nigerian import statistics to be better measures of real cross-border livestock flows than Nigerian export statistics. To test this hypothesis, an analysis of official statistics for two portions of the Niger-Nigerian border was performed, for cattle, small ruminants and camels. The first (western) portion was the Birni N'Konni-Illela crossing from Tahoua Department to Sokoto State. The second (eastern) was the border which Kano State has with Niger, including data from the customs posts of Magaria, Dungas and Mallaoua in Zinder Department. The four-year period analysed was from October 1984 to September 1988.<sup>14</sup>

Unless animals are being invented, Nigerian border statistics are better measures of cross-border cattle flows than are Nigerian statistics: Nigerian cattle imports are consistently higher than Nigerian cattle exports. Month-by-month data is more available from Nigerian livestock control posts than from Nigerian customs posts (though occasionally it is the Nigerian, not the Nigerien, border post statistics which are not available). In months when both sides report flows, Nigerian totals almost always exceed Nigerien totals. The exception appears to be the 1984-85 destocking in response to the drought when Kano State import figures are generally lower than the corresponding Zinder Department export figures. Moreover, aggregated annual national totals for international flows (1976-85) consistently show Nigerian import figures to exceed Nigerien export figures, on average by a factor of 2.6. (See table 4.1.<sup>15</sup>)

For small ruminants and camels the evidence is mixed. Monthly data is more likely to exist for Nigerian imports than Nigerien exports. In months when data exists for both sides, small ruminants are better recorded by Niger in the east, by Nigeria in the west. For camels the reverse is true, though camel data is very sparse in the west. Aggregated annual small ruminant data on the national level for the short period 1983-85 suggest that official Nigerien exports consistently exceed Nigerian import levels (though the annual Nigerien export figures vary greatly, with the annual totals for five of the years being less than ten percent of the 1983 total). (See table 4.1.)

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<sup>14</sup> The data from the Nigerien side came from a computerised data base of customs records of cross-border flows of agropastoral products. On the Nigerian side, the Kano State imports were collected at the livestock statistics office in Kano City; the Illela data came from the livestock control post in Illela.

<sup>15</sup> The derivation of Nigerian imports in table 4.1 is discussed in section 4.1.3.

The difference between trends in cattle data and those for other species, tempts one to conclude that the Nigerians consider that keeping track of cattle is all that is important. Cattle flows appear to be worth about ten times as much as small ruminant flows and perhaps almost 100 times as much as camels flows, so this may be an optimal use of manpower.

It is sometimes difficult to believe that the two sides are measuring the same flows. In the analysis of the two segments of the border discussed above, for none of the 48 months did the cattle counts from the two sides agree to within 10 percent for either portion of the border. For small ruminants, for both segments of the border, counts came to within 10 percent in two months. For camels, this occurred in four months.

The cross-border flows from Niger include transhumant herds, some of the members of which are sold before the animals recross the border. If they are considered to be part of the offtake of the Nigerian national herd then they should be included in commercial flows, but no attempt is made to deal with them here.

#### 4.1.2 Historical data on livestock imports from Niger

Larrat (1955:40-41) notes several estimates of annual Nigerian livestock imports. For cattle, the largest is 400,000 head. This figure came from the British delegation to a 1952 Anglo-French livestock marketing conference in Nigeria. The French

Niger-Nigerian livestock flows (annual totals by species)						
	cattle			small ruminants		
	Nigerien exports	Nigerian imports	as % of exports	Nigerien exports	Nigerian imports	as % of exports
1975	54238			148320		
1976	130163	163018	125	28320		
1977	59475	226173	380	28320		
1978	36796	234652	270	114800		
1979	99958	261086	261	49240		
1980	57613	238165	413	60240		
1981	140333	335278	239	522120		
1982	73813	323136	438	149880		
1983	201096	212648	106	911680	39778	10
1984	167429	348363	208	391040	235751	69
*1985	140754	189706	135	302200	119176	39
1986	4917			2480		
			avg = 258			avg = 37

Export data come from converting tonnes of ruminant exports reported in Plan's Commerce extérieur: résultats provisoires, 85-86, table 9, p32, converting to cattle at 1 head = 240 kg (as given by Ministère du Plan), and converting to small ruminants at 1 head = 25 kg (c.f. 1 sheep = 28 kg and 1 goat = 23 kg, given by Ministère du Plan)

Data for Nigerian imports include 1/3 of Borno State imports.  
\* 1985 small ruminant import data are for sheep only. No data available for goats

Table 4.1

delegation estimated 200,000 head, after having extrapolated from official export figures from their colonial territories adjoining Nigeria. Their official figures averaged 118,000 annually for 1949-1952. Larrat states that he personally has more faith in a Nigerian estimate of 300,000 head. He ascribes the larger part of Nigerian imports to Nigerien exports, but does not provide a precise estimate. Chad was the other large exporter of cattle to Nigeria, with Cameroon and Soudan (Mali) representing only a tiny fraction.

Larrat also notes that Chad supplied very few small ruminants to the Nigerian market. Indeed, the official 1949-53 statistics he displays allocate to Niger 96.7 percent of exports from French territories to Nigeria. Official "French" annual exports of sheep averaged 191,000 head. He does not discuss goats or camels.

In 1967, Ferguson (38-39) wrote:

"The long-term trend in French cattle imports is definitely upward, increasing from 140,000 in the mid 1950's to nearly 300,000 in 1963-64. The increase has occurred for a number of reasons. The first is the thriving dried-beef trade that has developed in the past 20 years. The second is that higher prices for cattle are available in Nigeria than among the less developed northern neighbors. The third reason has been the deterioration of markets outside Nigeria. Few cattle now leave Niger for Ghana because of the trade restrictions and the decreased value of the Ghana pound. Markets for Chad cattle in East Africa have been disrupted by disturbances in the South Sudan and by the recent political and economic instability in the Congo. Nigeria, with a hard currency and natural trade routes to the sea, ~~has become a more attractive market.~~ Larger cattle imports have accounted for nearly half the increase in cattle marketings in Nigeria since 1957." (emphasis added)

A 1969 report (République Française 1969:45-48) states that throughout the early 1960s official Nigerien estimates of Nigerien cattle exports were 170,000 head annually, of which between 140,000 and 150,000 head went to Nigeria. The report's authors estimated total cattle imports into Nigeria along its northern border in 1966 to have been 259,000 head from both Niger and Chad of which 163,000 (63 percent) head from Niger.

In 1971, Bishop (1972:31) estimated that Nigeria produced 950,000 head of cattle (74%) and imported 330,000 head (26%) of its 1,280,000 head consumed. For small ruminants the figures he gives are: domestic production of 9,000,000 head (96%) and imports of 400,000 head (4%) of 9,400,000 head consumed.

He also estimated (1972:32) that 165,000 head of cattle (50%) of Nigeria's total cattle imports of 330,000 head came from Niger in 1971. An additional 15,000 head (5%) came through Niger from Mali and the remaining 150,000 came from Chad (45%). For sheep and goats, his estimates were 340,000 head (85%) from Niger and 60,000 (15%) from Chad.

In 1979, a French consulting company concluded that:

"Livestock [imported into Nigeria] from Niger is estimated at more than 150,000 head per year in 1978, of which only 42,000 [28 percent] passed through official border controls. Amongst this total are unknown Malien, Voltaique and Chadien components which are estimated at about ten percent of the total<sup>16</sup>." (Bureau d'Etudes de Philippe Queyrane 1980:24)

#### 4.1.3 Trends in imports from Niger: 1976-85

Official Nigerian import statistics from 1976-85 were examined. Data are given state by state. Gongola, Benue and Cross River States border Cameroon and receive no Nigerien livestock. Borno State borders Niger, Chad and Cameroon. Though its longest border is with Niger perhaps only one third of its imports originate there. The livestock imported into Kano and Kaduna (now Katsina) States may be considered Nigerien in origin, as can most of those into Sokoto State and, to a lesser extent, Kwara and Oyo States.<sup>17</sup> Thus the "Nigerien" component of Nigerian imports was estimated as total livestock imports minus two-thirds of those for Borno and all animals entering through the states with eastern borders.

The "Nigerien" component contains some animals from Burkina Faso and Mali. This component varies in size with the total flow of animals into Nigeria because these two countries are more marginal suppliers to the Nigerian market than Niger. Their small contributions can easily double or quadruple whereas Niger's variations are never that great.

Results of the analysis, displayed in table 4.1, suggest higher export levels than some of the previous estimates. The range of annual Nigerien (and Burkinabe and Malien) cattle exports was from 163,000 to 348,000 with an average of around 250,000 head. Bishop and the 1979 study both suggest the non-Nigerien component

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<sup>16</sup> The proportion of Malien and Burkinabe animals in the total varies with the total itself. They are marginal animals which will be redirected to other markets, principally Côte d'Ivoire, when relative prices favour this.

<sup>17</sup> Although Ogun and Lagos States also have international borders, they receive very few livestock imports.

of "Nigerien" exports to be around ten percent. On the other hand, at least this proportion could easily escape the notice of the Nigerian authorities. One is therefore persuaded to accept the crude totals as minima. The trend is upwards from 170,000 in 1976 (during intense herd reconstitution in Niger) to 320,000 in 1981 at the end of the Nigerian spending spree. The level then falls with the notable exception of 1984.

Cattle imports peaked in the drought year of 1984. Data for this year were available from most states and indicate that 598,000 head were imported, of which 348,000 (58 percent) came from Niger, Burkina Faso and Mali. As the contribution to "Nigerien" exports from Burkina Faso and Mali rises in peak years we may suspect that 350,000 is nearer to the underlying reality than in other years.

In 1985 only 345,000 head were imported of which 190,000 (55 percent) came from Niger. This low level marked the beginning of the post-drought herd reconstitution and the effects of SAP.

#### 4.1.4 Imports since the 1984 drought

After the 1984 drought Nigerien livestock exports to Nigeria dropped off sharply. In fact, there have been various accounts of certain categories of ruminants being sold from south to north across various parts of the border. Most of these were breeding stock, as one would expect after a severe drought, but evidence is convincing that during certain periods slaughter animals were part of this flow.

Such stories allowed the growth of a mythology that for months, if not years, the north-south export flow had completely dried up. SAP was to blame. It led to such a reduction of purchasing power that Nigerians could not afford Nigerien livestock. Although post-drought Nigerian import data is sketchy, it is clear that this was not the case. Nigerien livestock continued to flow across the border in their tens of thousands each year.

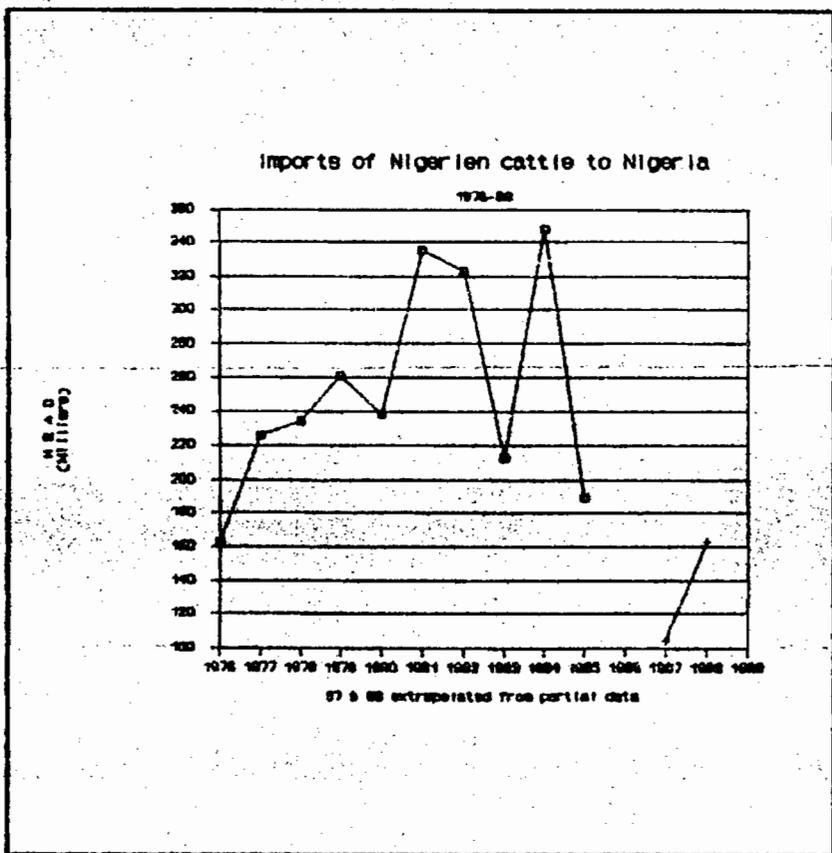
The draft FLPCS annual reports for 1986-88 available contain little import data. However, FLPCS data is available for Kaduna/Katsina State for 1987 and 1988. In these years imports (which, we may assume, all came from Niger) were 12,500 and 23,000 head of cattle respectively. These compare with 37,000 in 1983 and 71,000 in 1984. Extrapolating the ratios of these exports for Kaduna/Katsina State to all Nigerien cattle exports gives estimates of 62,000 and 72,000 head in 1987 and of 114,000 and 132,000 in 1988. After comparison with all years from 1981 to 1985, the average figures were 110,000 head in 1987 and 204,000 in 1988.

Data from Kano State and from Illela control post on the Sokoto State border, used for the comparison of exports versus imports

(section 4.1.1), were also available. Kano State imports also show a post-drought drop, but not as large as one might expect. Its imports (again, all from Niger) dropped from a 1984 high of 37,000 head of cattle to a 1987 low of 15,000 but rebounded to a 1988 figure of 26,500, higher than the figures for 1980-82 and equal to the 1983 figure. Similar extrapolation as for Kaduna suggests total Nigerian exports of 169,000 for 1987 and 295,000 for 1988.

The data from Illela border control post tell another story. According to control post records, cattle imports fell from around 40,000 head in 1983-85 to a 1987 low of 2,000. Data for the first seven months of 1989 suggest an upturn with annualised imports of 5,000 head. Extrapolation from this data suggests a Nigerian total of 27,000 head exported in 1987 and only 7,000 in 1988.

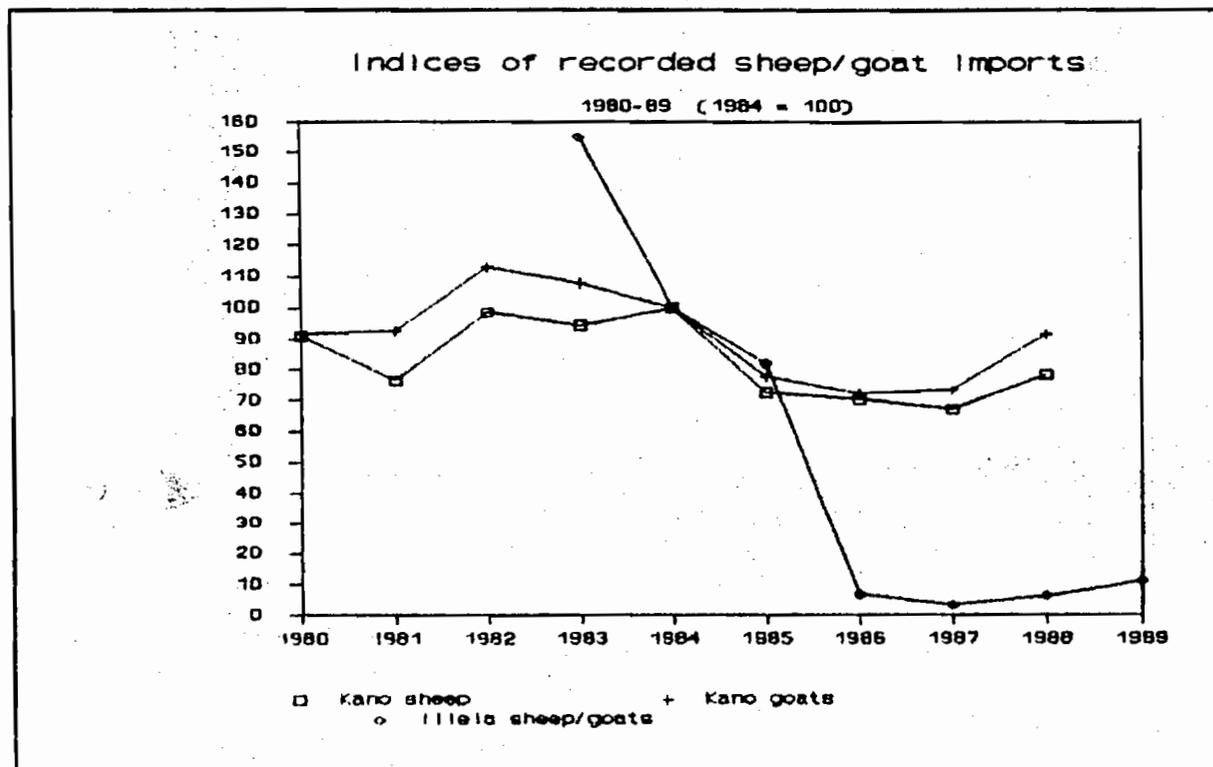
An attempt was made to extrapolate from these different data the total Nigerian cattle exports for 1987 and 1988. The 1969 report (République Française 1969:48) allocates cattle exports to certain segments of the border for 1966. This allocation was used as the basis of a system for weighting the three estimates of exports for 1987 and 1988. The weights were: "West" 2.5%, Tahoua 29%, Maradi 32%, Zinder 30.5%, Diffa 18.5%. The Illela projection was weighted by the Tahoua weighting, the Katsina projection by the Maradi weighting, and the Kano projection by the Zinder weighting. Having no export projections for the western or Diffa segments, the weighted average from the other three segments was assumed to hold for these two segments also.



Graph 4.1

Source: Table 4.1 and section 4.1.4

The results are illustrated in graph 4.1: 105,000 head in 1987 and 163,000 in 1988, though it should be remembered that the flows were not evenly distributed along the border. The 1988 value is almost identical to the 1976 value which obtained two years after the end of the 1973-74 drought. The latest available data from all three data series suggests an upward trend, so 1989 exports should be greater still.



Graph 4.2

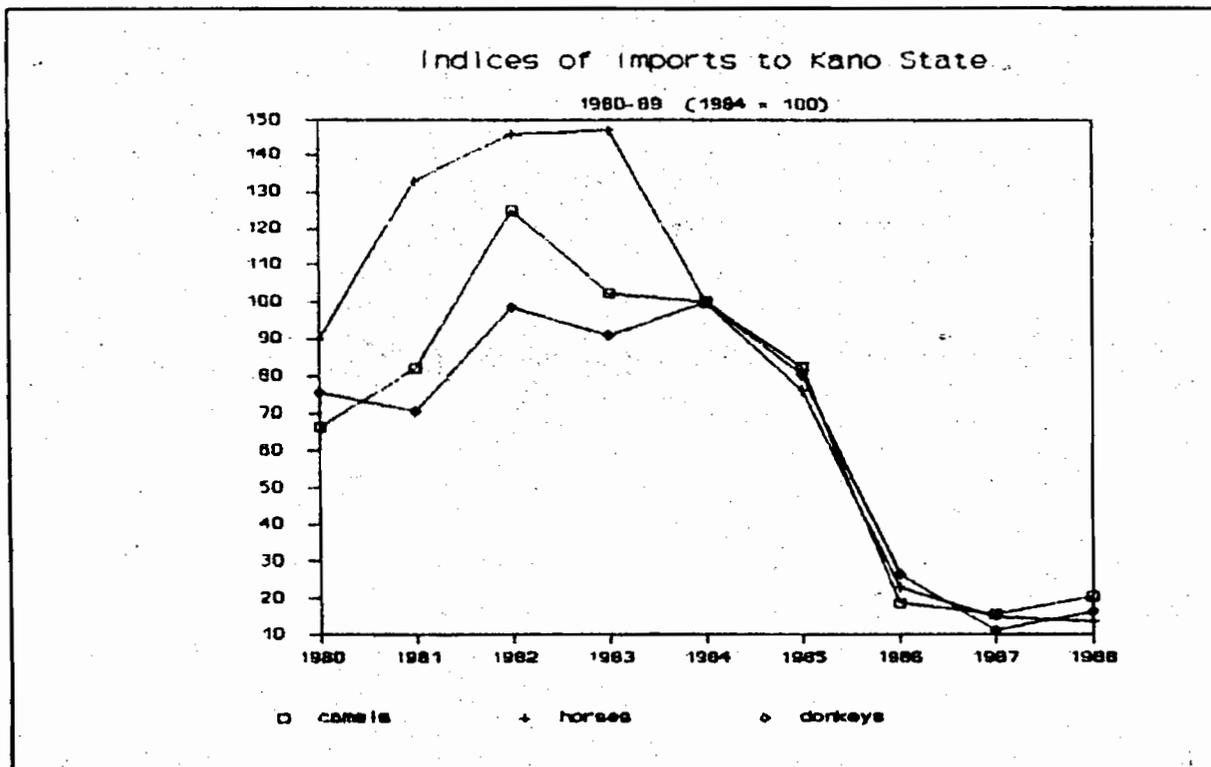
Source: Kano and Sokoto State livestock services

Similar data do not exist to enable estimates of recent export levels for other species to be made. However, recorded small ruminant imports for Kano State and Illele bottomed out in 1987 and were rising thereafter. (See graph 4.2.) Kano State camel imports had also bottomed out in 1987, but were rising only slowly. (See graph 4.3.)

Sources of data used to estimate cross-border flows are given in appendix 3.

#### 4.1.5 Trends in imports versus domestic supply

Graph 4.4 shows variations from 1976-85 in the number of cattle imported into Nigeria from Niger (from section 4.1.3), the number



Graph 4.3

#### Kano City Zonal Veterinary Office

shipped from northern Nigeria to southern Nigeria, and the number of official slaughters. Note that total cattle imports are about 90 percent greater than the Nigerian contribution shown. Note also that "north" here means north of the Niger and Benue rivers, and so includes most of the sub-humid zone and thus most Nigerian cattle-producing areas.

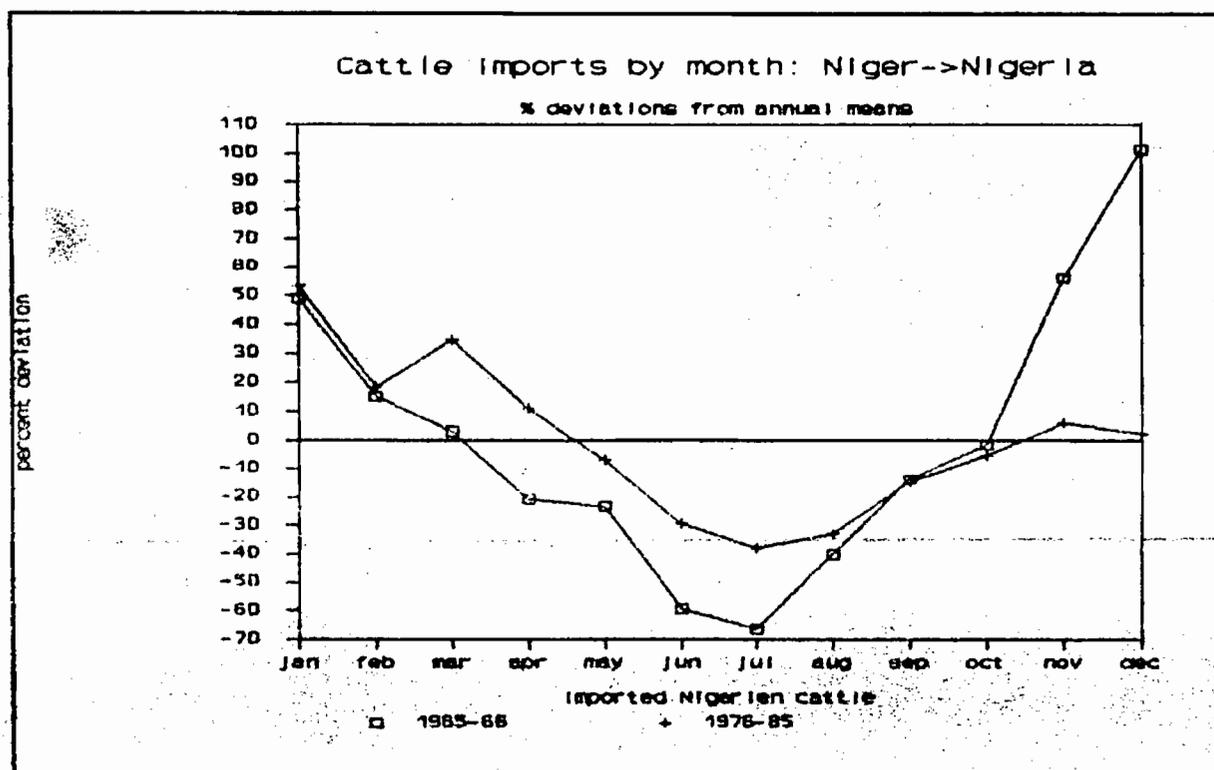
There is considerable uncertainty in these numbers. The number of official slaughters probably heavily underestimates reality. However, the graph serves to focus thought on the relative growth of the important supply and demand variables.

The difference between the total number of slaughters and the total number of imports is a measure of northern production. The difference between the number sent south and the number imported is a measure of net northern exports. The total number of slaughters minus the number sent south is a measure of northern consumption; while southern consumption may be considered roughly equal to the number sent south.

The overall trend in official slaughters until 1984 was upwards at about 11 percent annually. Most of this appears to be the result in increased northern consumption, with southern consumption increasing at an annual rate of only 7 percent over the

From the Nigerien point of view, this well-developed marketing system represented a lost opportunity. Value-added which might have accrued to Nigeriens was surrendered to producers and traders from Northern Nigeria to the extent that some sales might have been reoriented to higher-price seasons and that animals might have been marketed directly to southern Nigeria.

Graph 4.5 shows trends in the proportion of Nigerien cattle imported into Nigeria per month relative to the annual mean, over the period 1976-85. The pattern is compared with previous findings (République Française 1969:56). Seasonality has dropped, probably due to a lower proportion of transhumant pastoralism and to the development of new markets and roads into the heart of Niger's pastoral zone where transhumant herders are to be found during the rainy season when exports tend to be at a low ebb.



Graph 4.5

Source: République Française 1969 & FLD

Nigerian traders still dominate the flow of livestock imported from Niger to southern markets, but the price differential due to seasonal scarcity from which they benefitted in the 1960s is reduced.

#### 4.1.7 Quality of livestock imported

Animals imported from Niger are similar to those offered in the market in northern Nigeria, in terms of species, age and sex, though average weights may be lower. Most of these animals have been raised on the open range and meet the needs of the mass market.

"The high quality type of beef demanded in the elite market is not commonly produced in the Sahel. Beef from zebu cattle raised on the open range is too lean and tough to be served directly at the table. In the general market, beef is generally used in the preparation of sauces and stews, through which it is thoroughly cooked and tenderized. Table beef for the elite market has for many years been either imported from overseas or obtained from specially fattened animals." (CRED 1979:21)

However, some Nigerien sheep and cattle are fattened and are of a quality which would interest middle class or elite consumers.

#### 4.2 The influence of SAP on livestock import levels

To reach a new price structure which gives Nigerians more incentive to produce goods for domestic production and export through SAP, the federal government allowed the official value of the naira to fall from September 1986 onwards. The prices of tradable goods, whether imported or domestic substitutes, appeared to rise in naira terms. A "price effect" increased the relative consumption of domestically produced non-tradables the prices of which did not rise so rapidly. An "income effect" reduced domestic purchasing power: inflation left most Nigerians with less real income.

The adjustment process lasted for more than two years. High inflation was all that many Nigerians saw, but what was also happening was that relative prices were changing as prices of tradables increased more quickly than those of non-tradables. The domestic price structure is now quite changed. The bout of inflation seems only recently to have subsided in the wake of the stabilisation of the exchange rate at the end of 1988. The market judged that the naira no longer had to fall to render Nigerian products competitive to the extent that foreign trade would be in net balance.

Of course, business calculations in the livestock import sector are mostly done using the black market foreign exchange rate and the naira had already been falling steadily against the CFA for years before SAP came into being, so the changes in the exchange rate used were not so precipitous as in the formal sector. How-

ever, in all other respects, SAP applied to livestock and meat as to any other tradables.

On the heels of the 1984-85 drought, the flow of animals from Niger to Nigeria dropped greatly. This post-drought phenomenon is always expected as domestic supply falls and domestic demand for herd reconstitution absorbs much of what little is supplied. However, the supply usually picks up again as post-drought recovery takes hold. This was very much the case after the 1973-1974 drought when Nigeria's booming oil economy created the means for Nigeria to offer high prices for Nigerien livestock. However, from 1985 until the end of 1988, the rate of the naira against the CFA franc dropped faster than livestock prices rose in naira terms in Nigeria. The price differential across the border calculated at the black market rate fell and, for some categories of livestock and across certain portions of the border, turned negative. Nigerien exports slowed down and herd reconstitution took place faster than in the 1970s.

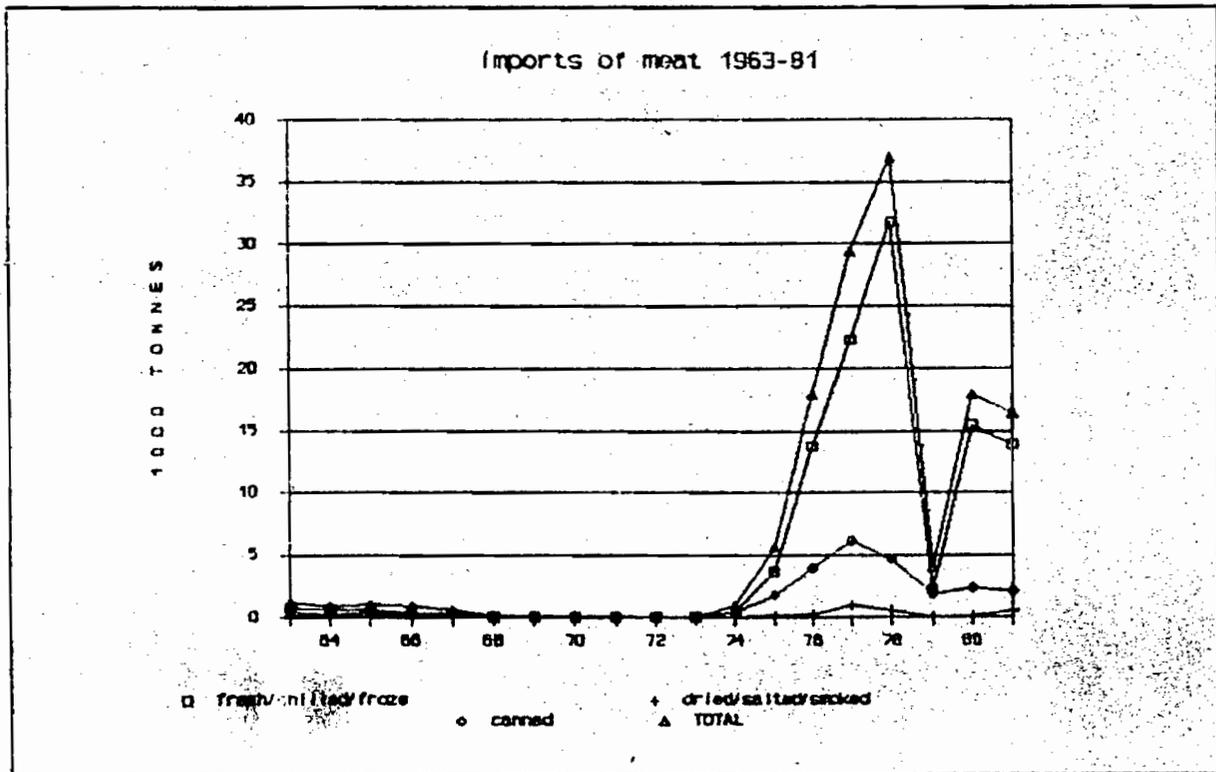
It was inevitable that animals would eventually begin to flow in greater numbers from north to south. Otherwise an unsustainable glut of livestock would have built up in Niger. Successful restocking (or, eventually, overstocking) had to occur in Niger driving prices low enough in naira terms to encourage imports into Nigeria. Indeed, livestock prices in Niger ceased rising after 1986, particularly for small ruminants which are initially in greatest demand for herd reconstitution.

The other mechanism which would have increased livestock imports to Nigeria from Niger would have been a rise in the value of the Naira on the black market, which would have made Nigerien livestock seem cheaper in Nigeria. This has shown little sign of happening and does not seem likely under SAP which the Babangida regime intends to keep in place until 1993 when it wants to hand over power to the 3rd Republic. A devaluation of the CFA franc would have the same effect. This has been discussed and the trade advantages to the CFA-zone countries seem evident but the optimal level of devaluation seems to vary between the countries concerned, and a compromise has so far eluded them.

#### 4.3 Meat imports

Graph 4.6 shows the volume of meat imports for 1963-1981. Fresh, chilled and frozen meat, mostly beef, dominate imports; canned meat is of second importance; dried, salted and smoked meat features only marginally. For much of Nigeria's history these meat imports have been far inferior to the meat derived from its livestock imports.

The noticeable feature of graph 4.6 is the rise in imports over the period of oil wealth from 1973 to 1979. 1975-78 co-incided with higher prices for Sahelian livestock during herd recon-



Graph 4.6

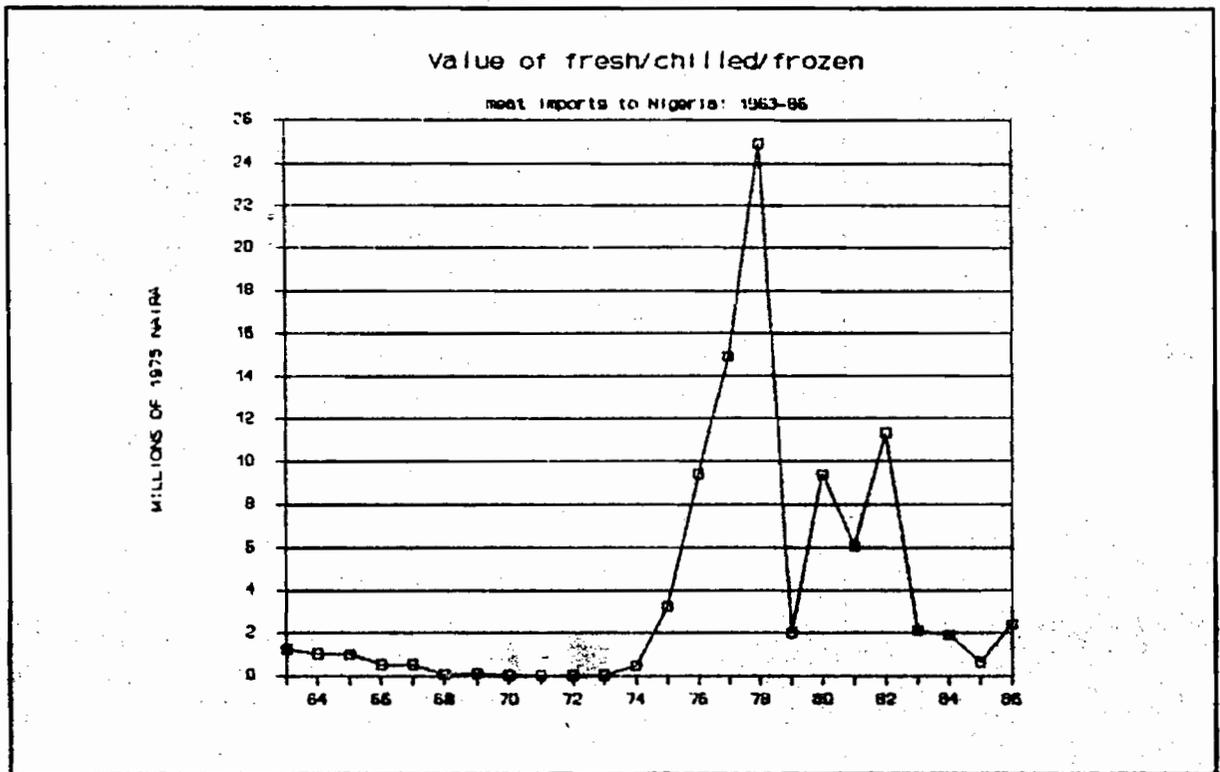
Source: Adeyemo 1984

stitution and also with unusually low prices on the world beef market. Nigeria was initially constrained in its imports of this meat by the congestion at its ports. Therefore meat was flown in from Brazil and Yugoslavia but, by 1977, frozen beef was being brought in by ship. (CRED 1979:13,23)

"The most momentous development in the general West African meat market in coastal countries was the appearance of frozen beef from overseas. Though small quantities of chilled and frozen beef had been imported previously for the elite market, the massive imports of frozen carcasses from South America that started in 1975 competed directly with fresh beef in the popular meat market." (CRED 1979:22)

The 1978 peak of 37,000 tonnes is equivalent to the meat yield of approximately 250,000 Sahelian cattle, whereas in that year Niger probably only exported 260,000 head of cattle to Nigeria. (See graph 4.1, section 4.1.4) Since 1982, as graph 4.7 indicates, imports have been much reduced because of a changing combination of import bans, diminished purchasing power and higher meat prices. Several Nigerian government officials made reference to a complete ban on meat imports over much of the 1980s, yet the facts are that official statistics record meat imports up to at

least 1986 (when they had in fact increased over their 1985 level);.



Graph 4.7

Source: Adeyemo 1984

Over the period of high meat imports Nigeria built up a chain of cold stores and refrigerated lorries capable of distributing chilled meat far beyond the port cities where the meat imports arrive by ship. A rise in frozen fish marketing also contributed to this cold chain. If incentives to import meat were to rise again, the infrastructure and know-how would be in place to allow rapid market penetration.

In September 1989, Côte d'Ivoire and Togo banned all frozen meat from the European Community after ECOWAS warnings to member countries about possible shipments of radioactive beef. Benin was reported to be looking carefully at its imports and other coastal West African countries became concerned. The source of the controversy was a cargo of Irish beef initially sent to Venezuela which rejected it because of its supposed radioactivity. It was then sent to the Netherlands where the offending part of the cargo was allegedly destroyed. 100 tonnes of the remainder was then sent to West Africa where it was successively rejected by Côte d'Ivoire and Togo. The Netherlands subsequently invited ECOWAS representatives to come and inspect its meat and meat

storage facilities.<sup>10</sup> In the long run, this isolated incident is unlikely to change the attractiveness of imported meat to the Nigerian consumer which will be evaluated mainly on the basis of price.

A breakdown of imported meat by country of origin for 1984-86 is to be found in appendix 2.

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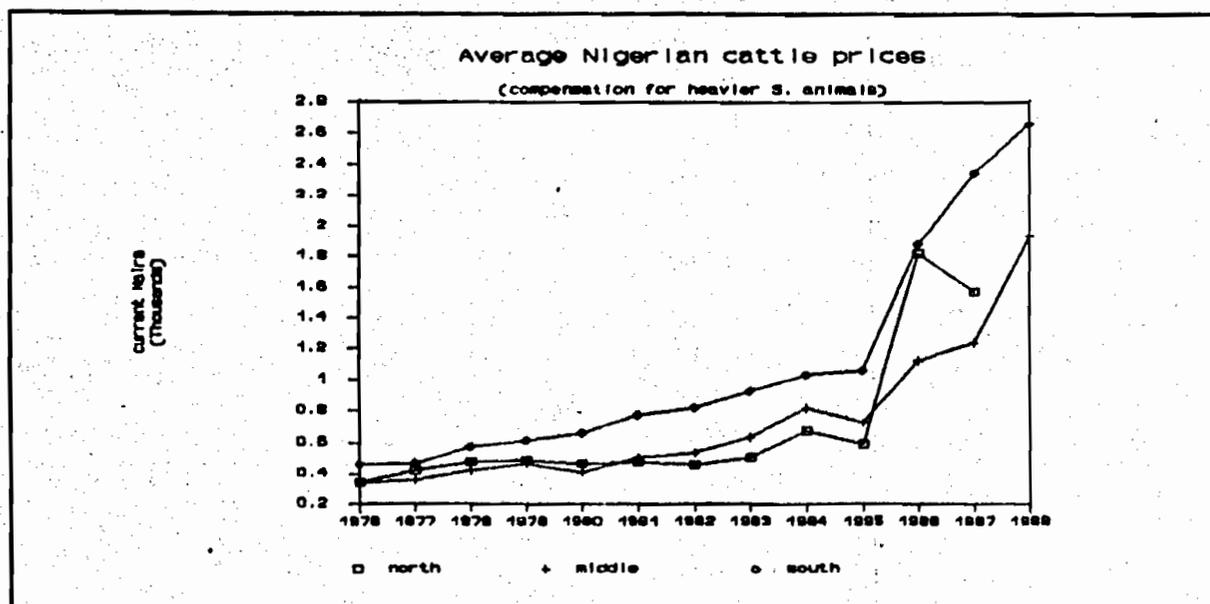
<sup>10</sup> BBC World Service, "African news", 28th September 1989

THE RESULTING STRUCTURE AND TRENDS  
IN PRICE AND CONSUMPTION

5.1 Price distribution

5.1.1 Price differentials over time between different zones and specific markets

We have outlined the surplus and deficit areas of livestock production in section 3.3. In a free market there should be a price gradient from deficit areas up to surplus areas. In this section this assumption is explored over time for livestock in Nigeria.



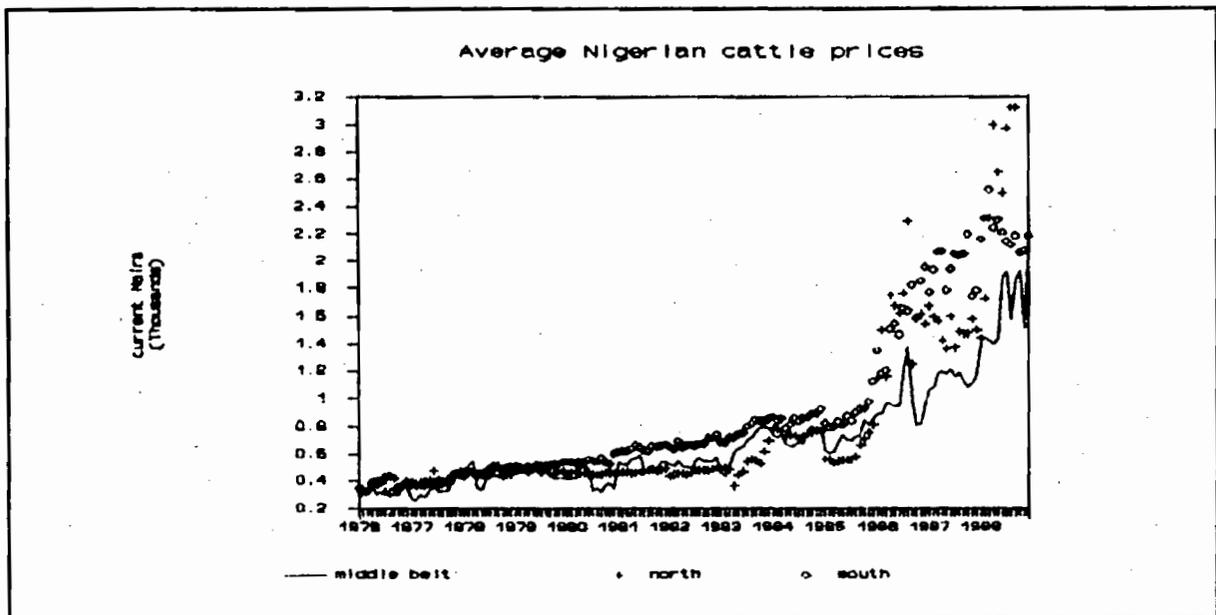
Graph 5.1

Source: FLD/FLPCS

Graph 5.1 shows the trend in annual average urban cattle prices from 1976 to 1988 for eight northern, four middle and nine

southern markets, in current naira.<sup>17</sup> Prices in current naira rise by almost an order of magnitude over this period, with the fastest growth between 1985 and 1986 after a drought-induced slump in 1985. Southern market prices (weighted by 1.2 to allow for higher liveweights -- see section 3.2) are usually highest. Of the other two regions, prices in the middle zone were higher from 1981 to 1985, before and after which northern zone prices were higher. This confirms the expected pattern of a price gradient between north and south. It also suggests that recent production increases in the middle belt are outstripping local demand to keep prices low.

Ferguson (1967:13) observed: "The price differential between northern and southern markets for live cattle is 50 to 100 percent." This is consistent with the picture painted for cattle in the late 70s and 1980s in graph 5.1.



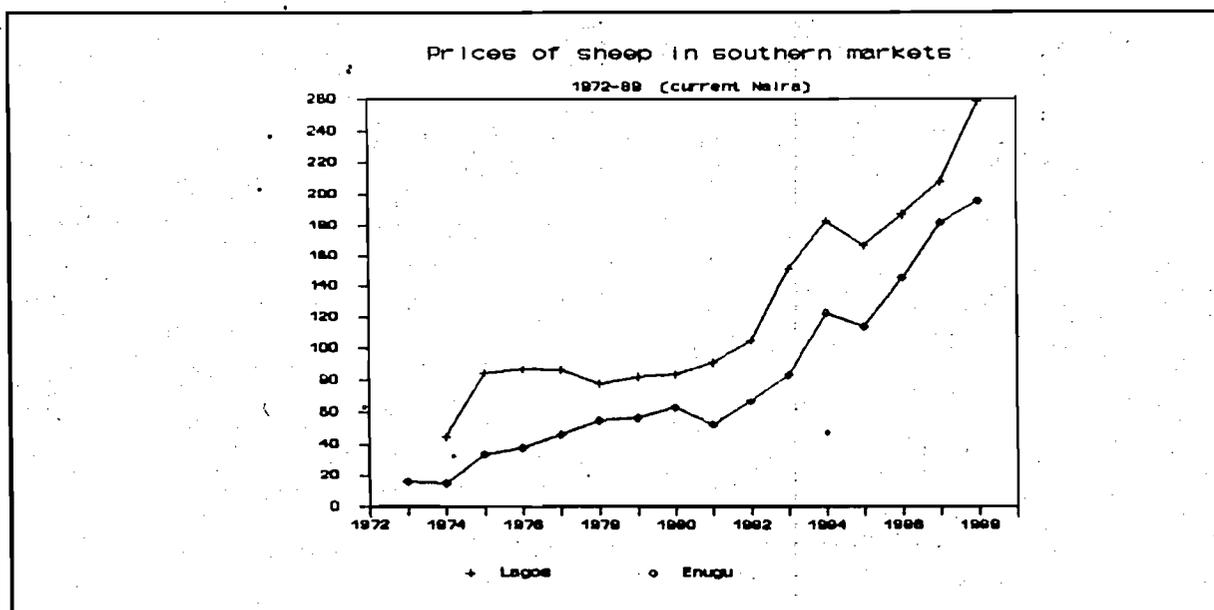
Graph 5.2

Source: FLD/FLPCS

Graph 5.2 shows the same information for 1976-86, this time on a monthly basis to show the far higher level of fluctuations which occur over shorter periods. The annual price averages hide wide

<sup>17</sup> The northern markets are: Bauchi, Jos, Kaduna, Kano, Katsina, Maiduguri, Sokoto, Yola and Zaria. The middle zone markets are: Abuja, Ilorin, Makurdi and Minna. The southern markets are: Abeokuta, Akure, Benin City, Calabar, Enugu, Ibadan, Lagos, Owerri and Port Harcourt.

monthly variations. The middle belt and north frequently change places as the lowest priced zone. Middle belt prices rise twice above south and north in 1978. Northern prices exceed southern prices for certain months in 1986 and 1988.



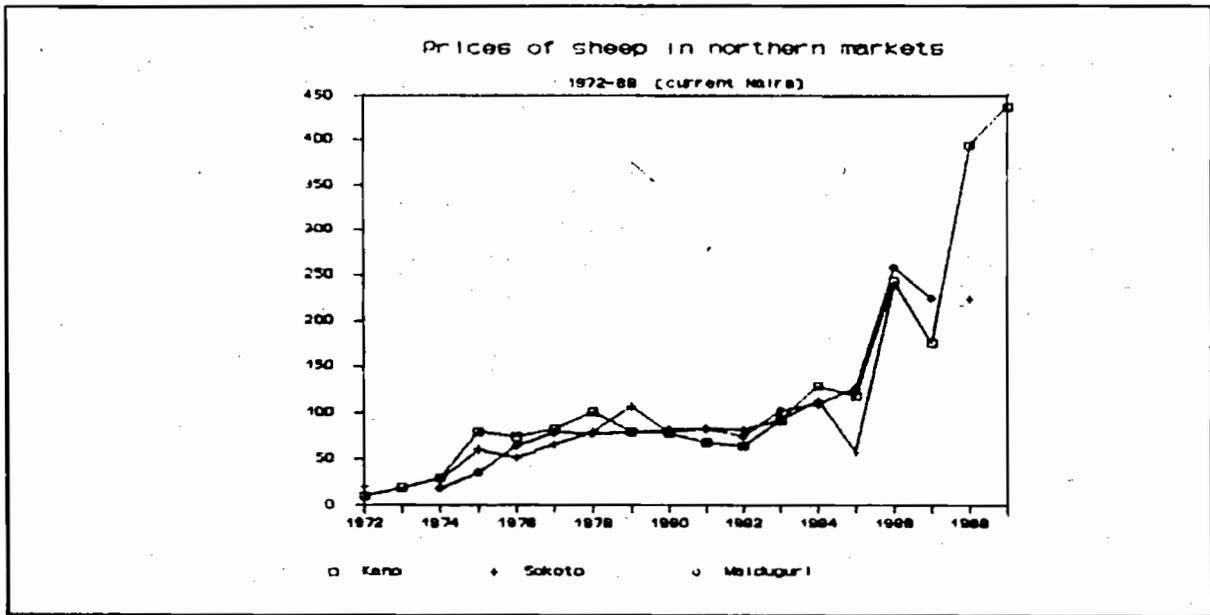
Graph 5.3

Source: FLD/FLPCS

Sheep price data tell a similar story but with their own peculiarities, as shown in graphs 5.3 and 5.4. Lagos prices move in step with those on northern markets<sup>20</sup> until 1983 when they begin to rise more quickly, but by 1986 prices in the north had risen fast enough to overtake them. Scanty 1988 information suggests that Lagos prices are higher than those in Sokoto but less than those in Kano. Enugu prices consistently trail Lagos prices by at least twenty percent. In the early 1980s Enugu prices rose to approximately the level in northern markets, but was subsequently left behind in the upward spurt from 1986 onwards. It may be that Enugu's sheep supply contains more dwarf southern sheep than Lagos', resulting in lower average prices.

Goat prices on northern markets (graph 5.5) rise after the 1974 oil price rise, steeply in the case of Kano, less so in Sokoto and Maiduguri. The goat market is characterised by relatively slow price increases thereafter. In particular, all northern prices stagnated from 1977 to 1984, before picking up from 1985

<sup>20</sup> Northern markets in this case are Kano, Maiduguri and Sokoto, equally weighted.



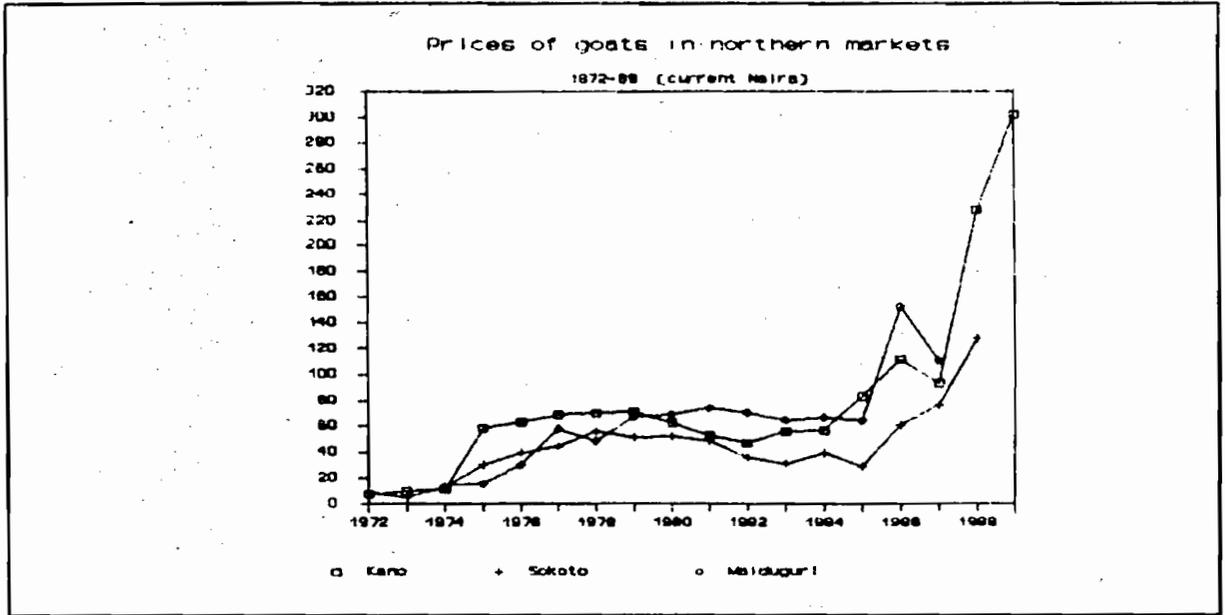
Graph 5.4  
Source: FLD/FLPCS

onwards. Southern goat prices (graph 5.6) were slightly less sluggish over the same period. As with the sheep market, from 1987-89 the lack of data and the range of price levels in northern markets makes it impossible to generalise about recent trends there.

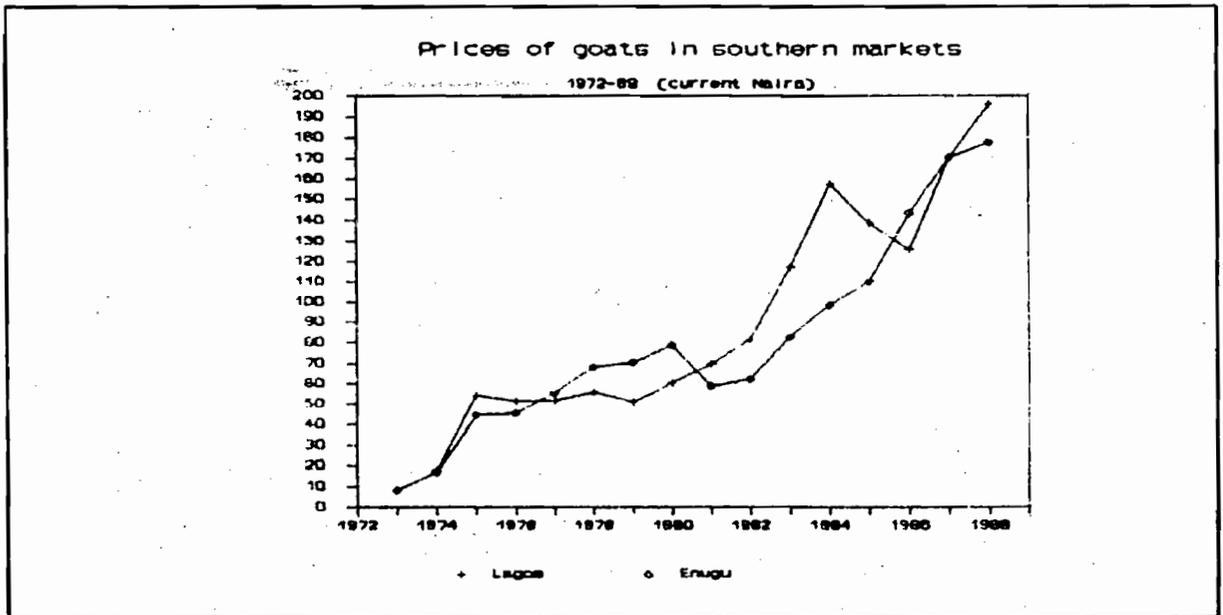
Data for a similar graph for camels and donkeys is more sparse, especially for recent years, and is available almost exclusively for northern markets. What is available indicates an irregular upward trend in less integrated markets than for cattle, sheep and goats. (See graphs 5.7 and 5.8.)

It is clear from these annualised data that pairs of markets can sustain price differentials of at least 50 percent for periods of years, and then they can change places and hold a similar differential in the opposite direction, again for a period of years. Look, for example, at the prices of cattle in Lagos and Enugu between 1974 and 1977 and then between 1981 and 1985. Bear in mind that this switching differential took place over a period during which sheep prices in Lagos were consistently at least 30 percent higher than in Enugu.

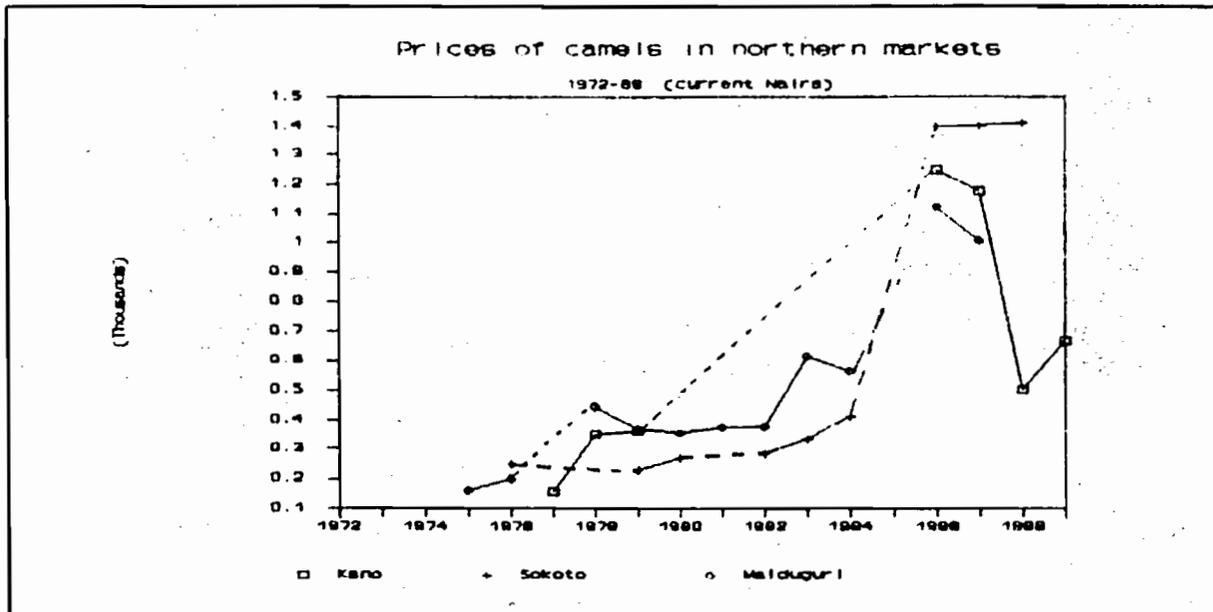
*4/6*



Graph 5.5  
Source: FLD/FLPCS

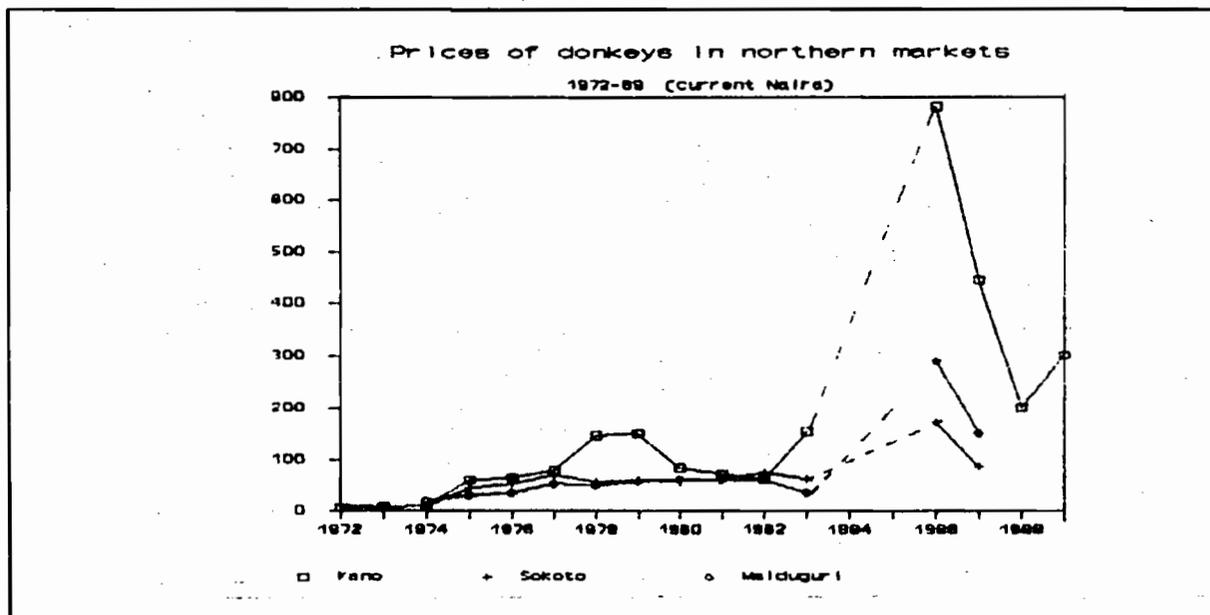


Graph 5.6  
Source: FLD/FLPCS



Graph 5.7

Source: FLD/FLPCS



Graph 5.8

Source: FLD/FLPCS



- o bull, rams and goats, for January and July, for 1983, 1987 and 1988;
- o beef, mutton and goat meat, for January and July, for 1983, 1987 and 1988 (except mutton in 1987 for which data were lacking);
- o 1984 annual average prices for:
  - cattle, sheep and goats
  - beef, mutton and goat meat
- o annual averages for bulls and beef, for 1986, 1987, 1988 (except beef in 1986)

The isoprice maps are reproduced in appendix 4.

The patterns of meat price variation resemble the idealised configuration, with a greater tendency towards north-south gradients than the livestock price patterns. The patterns for the different meats for a given period are similar, as we would expect of substitutes. In contrast, although in 1983 and 1984 there is a suggestion of a common pattern to sheep and goat prices, the pattern for cattle is different from both. For 1987 and 1988, all livestock price patterns are different and none conforms closely to the idealised pattern.

Two patterns for livestock are particularly interesting. The first is the "hollow centre", exemplified by July 1983 sheep, goat and beef prices and by July 1988 mutton prices, and which reaches its apotheosis in the pattern of July 1987 bull prices. Such a configuration gives strength to the argument that the middle zone may be an zone of supply to rival the north, particularly in post-drought periods: the middle belt is much less affected by drought than the savanna and Sahel to the north.

The second pattern of interest, which is less easily explained, is the "hollow south". Examples of its weaker form are July 1983 sheep and July 1987 rams where some coastal prices are lower than some middle belt prices. Examples of the full-blown form are 1984 sheep, January 1988 goats and rams and, particularly, July 1988 bulls. Here there is a complete band of higher prices separating a sizable coastal area of lower prices. Only willful dumping of huge quantities of livestock or meat all over the coastal zone would seem to explain this apparent aberration.

Seasonal differences (January versus July) for meats and livestock are not remarkable when compared with interannual, inter-species and intermeat variations.

There was a higher correspondence between price patterns of cattle and beef than between small ruminants and their meats. Goats and goat meat trends were more closely correlated than those for sheep and mutton. This suggests more tightly vertically-integrated markets for cattle and beef than for goats and goat meat, and for both compared to sheep and mutton. These

visual impressions are reinforced by the hierarchy of ratios of maximum and minimum prices across the country for the different markets. The ratios were:

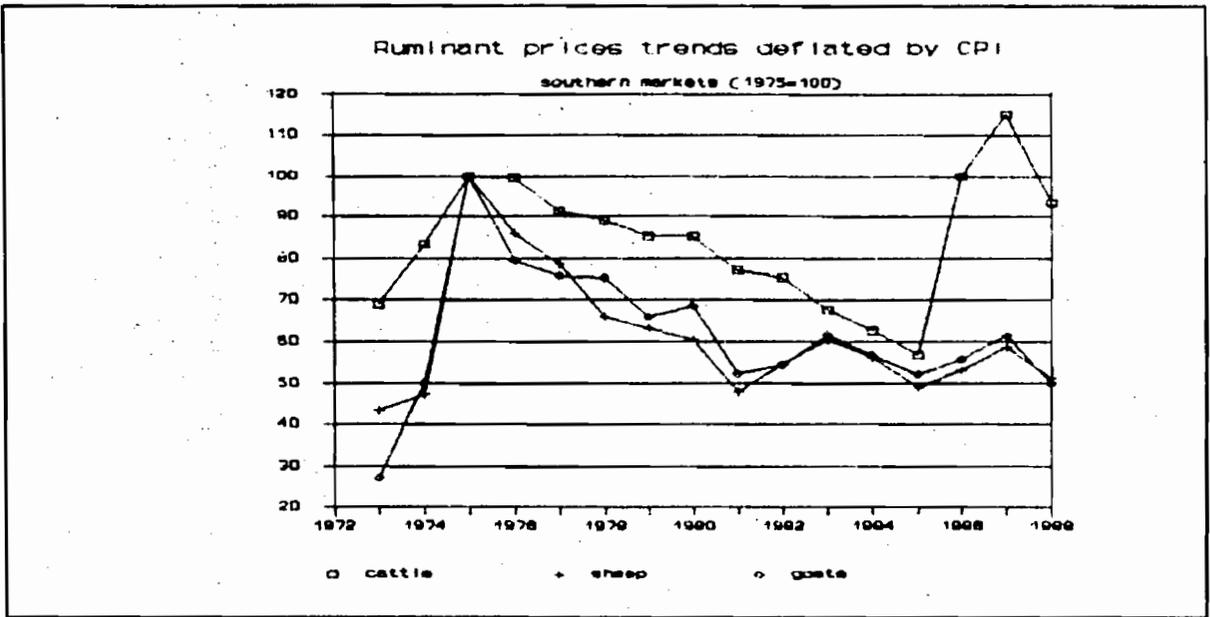
cattle: 2.3	beef: 2.2
sheep: 4.4	mutton: 2.8
goat: 4.7	goat meat: 3.0

The low nationwide price spreads for cattle and beef suggest a competitive integrated market, whereas the small ruminant market appears to have wider price ranges, suggesting speculation and/or poor market integration. Note that in each case the animal price spread is greater than that for the corresponding meat: retail meat prices vary less than slaughter prices. This particularly true for small ruminants.

## 5.2 Trends in real prices

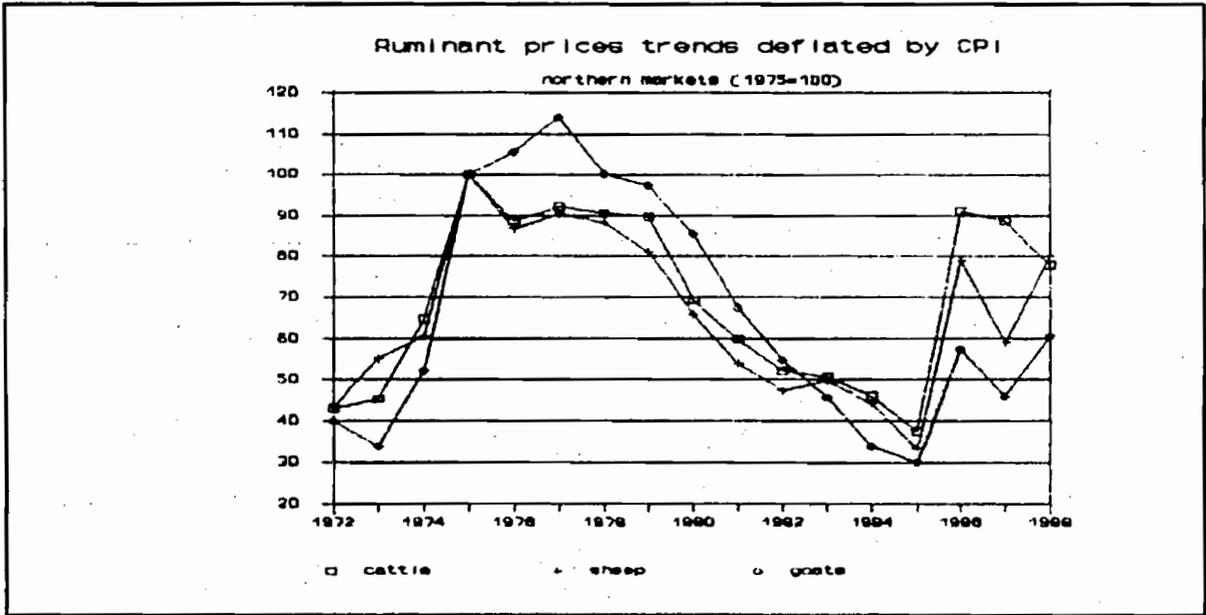
When price trends are looked at in the light of general price inflation in the country, different highlights emerge. Graphs (5.9 and 5.10) of livestock price indices are deflated by the consumer price index (CPI), setting 1975 = 100. 1975 was the year in which real livestock prices reached a peak, after having climbed sharply from 1972 following new wealth from increased oil output and higher oil prices. With the exception of goat prices on southern markets which continued upwards for two more years, real livestock prices began ten years of continuous relative decline. The decline was steeper in northern markets probably because, as part of a post-drought frenzy to rebuild herds, 1975 prices had leapt to extremely high values. This left the real price of cattle, sheep and goats in 1985 at between 30 and 40 percent of their 1975 prices. In southern markets the range was roughly 50 to 60 percent.

In other words, although the price of livestock was rising almost continuously from 1975 to 1985, prices of other commodities were rising more quickly, so that the relative value of livestock fell. Why did this happen? One reason is that the 1975 level was artificially high, particularly in the north. At the end of a prolonged Sahelian drought, all ruminant species were scarce, but as herds were rebuilt across the decade, the scarcity was gradually alleviated, though more quickly for fast-breeding sheep and goats than for cattle. This effect was less strongly felt on southern markets where the major effect of the oil wealth was enjoyed so that, despite higher prices, the new-found wealth was partially used to continue the consumption of meat, especially beef, at high levels. A second reason is Nigeria's increased ability to finance imports of fish and meat, reducing the demand for indigenous livestock. Meat was then particularly cheap on the world market. A third is the fish, eggs and poultry which were the benefits realised from the investment of oil wealth in the national fishing fleet and in poultry farms. This trend continued until the 1984 drought once again made livestock scarce.



Graph 5.9

Source: FLD/FLPCS/FOS



Graph 5.10

Source: FLD/FLPCS/FOS

After the 1984 drought, price rises were less spectacular than in 1975. In 1975, Nigeria had been on the bow wave of the oil boom. Civil servants' pay had been doubled in 1974. There was a lot of money chasing the relatively rare livestock. In 1985, in contrast, the country was facing up to a period of austerity and there was less money to buy meat. Poultry and egg industries were well established, and fish was widely available, even in the north. There was thus less incentive to bid up the price of livestock. It makes sense that the real value of cattle, which reproduce more slowly than small ruminants, should rise more than those of small ruminants, but the magnitude of the post-1984 drought cattle rise on markets in southern Nigeria, sustained for two years, is not readily explicable. On the other hand, neither is the feeble rise in the relative price of small ruminants in southern markets. They leapt up in both markets after the 1974 drought, and both doubled in northern markets between 1985 and 1986. In southern markets they gained only 20 percent in real terms in two years (1985-1987) and lost all this again between 1987 and 1988.

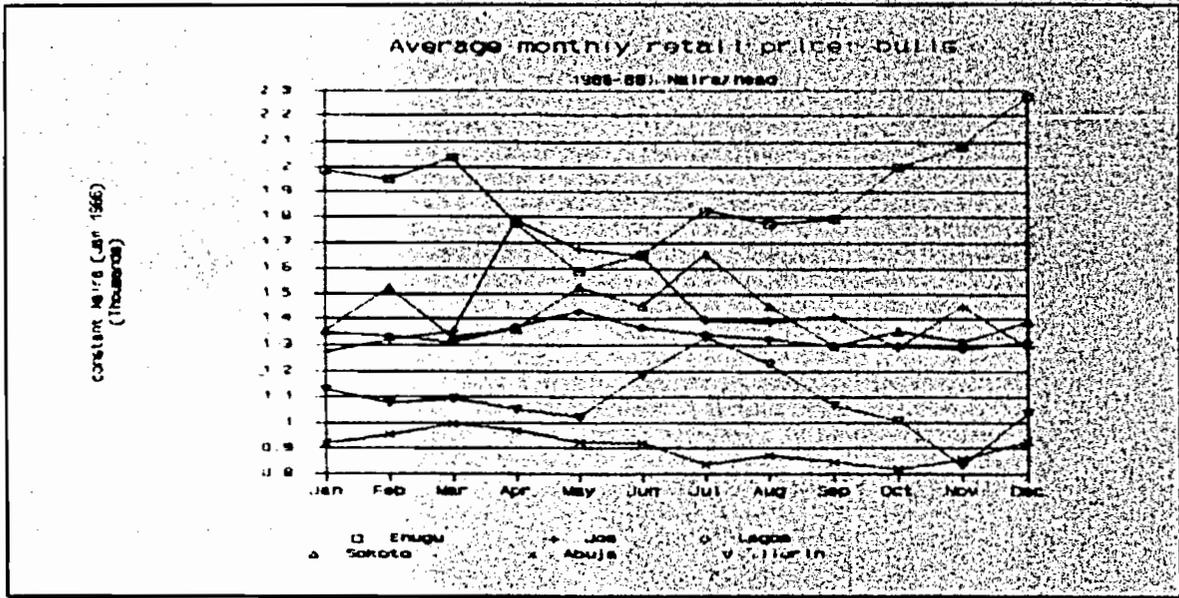
Within the southern ruminant market the real value of cattle relative to sheep and goats was twice as high from 1985 to 1988 than it was in 1975. It is clear neither why this occurred nor how this price differential might have been sustained. In northern markets, in contrast, the 1988 ratio of cattle to sheep values is identical to that in 1975 and the same ratio for cattle to goats is only one third higher.

It should be noted that the CPI and the food price index move very closely together over the 1970s and 1980s, so the real livestock prices illustrated in graphs 5.9 and 5.10 are also good representations of the price of livestock relative to all foodstuffs.

### 5.3 Seasonality of bull and ram prices

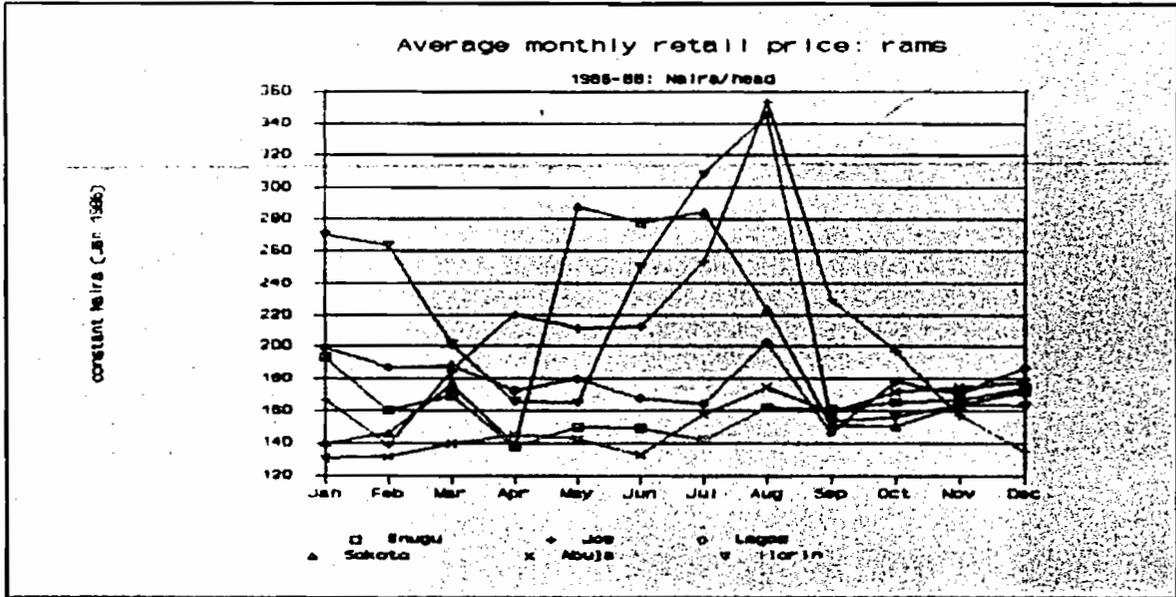
Seasonality may enter into prices from the supply side, mostly from the lack of transhumant cattle and sheep during the rainy season or the selling off of goats by farmers before and during the growing season (to pay for inputs and to make ends meet while they are waiting for the crop to mature). It may also come from the demand side because of festivals, principally Christmas and Eid-el-Kebir (Tabaské), as described in section 2.4.2.

For bulls and rams, for a selection of markets for which data was complete, monthly prices for 1986-88 were deflated by the CPI and averaged by month across years to see if there were signs of seasonality. This analysis also allows relative prices between markets to be distinguished across the year. (See graphs 5.11 and 5.12.)



Graph 5.11

Source: FLPCS



Graph 5.12

Source: FLPCS

Eid-el-kebir for these years was in July and August. For bulls we see Eid-el-kebir peaks for Sokoto and Ilorin, and Eid-el-kebir dips for Enugu where the Christian population perhaps lowered its ram purchases until after the Muslim festival was over to avoid the high prices. To compensate, Enugu has a noticeable Christmas peak. There are few other seasonal trends.

The two southernmost markets, Lagos and Enugu, do not invariably feature the highest prices for bulls. Prices in Sokoto and Jos (north/middle) are generally higher than those in Lagos though almost always lower than the Enugu level. The cheapest markets are Ilorin and Abuja in the middle belt.

For rams we see a much greater price response to Eid-el-kebir, to the exclusion of almost everything else. The price rise of up to more than double the off-season price is most pronounced in Jos, Ilorin and Sokoto. Interestingly, only half of Jos' population is Muslim. However, peaks are also discernible for Lagos and Abuja. Only Enugu, with few Muslims, seems to have a more important Christmas peak. Lagos also has a Christmas peak.

On average, ram prices appear to be highest in Jos and Ilorin (in the middle belt), followed by Sokoto (north) and Lagos (south). The lowest prices are to be found in Enugu (south) and Abuja (middle belt).

#### 5.4 Interpretation of the graphs

The evidence of the data is mixed. The overall trend confirms the conventional wisdom that urban markets in southern Nigeria have higher prices than their northern counterparts. This is fairly clear from the annualised data. However, a lot of fluctuation becomes evident when the information is presented on a monthly basis, inevitably leading to a short-term fuzziness in the direction of livestock flows. At any given point in time, local conditions may create counterintuitive price gradients. This may be because of weak linkages between certain markets (particularly in an east-west direction), manipulation of the market by certain operators with great commercial strength, or poor market information as a market which is usually in deficit builds up a temporary surplus which depresses prices.

It should be borne in mind that even the cities in the producing zones may now be thought of as essentially consumption markets. Trucks from nearby assembly markets drive straight through and on to other consumption centres. The prices obtaining in the northern consumption centres should, on average, be lower than those in southern markets but, given the relatively low cost of transport as part of the total cost of delivering an animal to market, the differences are not great.

However, middle-belt markets often have lower prices than northern markets. It seems to be more than a function of short-term fluctuations, particularly recently. This zone has a much lower livestock population than the north, but a much larger one than the south. Its population density and its number of cities are low. It may well be a net surplus region and a "swing producer" moving its surpluses to urban areas to north or south in pursuit of highest profits. Particularly after droughts it may well be a net supplier to the north to meet herd reconstitution demand.

The seasonality of ram prices is confirmed. Low seasonality in bull prices probably reflects that, while they are acceptable for festival slaughters, they do not carry the same prestige for this purpose.

Interregional price spreads (and therefore profit levels) are greater in the small ruminant market than in the cattle market. This suggests a thinner, less integrated, less competitive market than for cattle. Both sheep and goats prices undergo speculation in pre-festival periods, and this must add to the range of prices to be found across the country.

In the final analysis some of the graphs still seem to resemble randomness with weak patterns superimposed. This is because of four factors: the errors emanating from poor data, insufficient understanding of some workings of the market to allow cogent explanation of its trends, market manipulation, and an inherent high degree of randomness in market activity. The last two suggestions will be discussed in chapter 7.

### 5.5 Protein price structure

The various protein sources are differentially available across the country. Available protein meets consumers on a relatively free market in which prices vary to accommodate supply and demand. (See chapter 7.) The resulting price structure is illustrated in table 5.1. It shows the ratios of prices of alternative proteins to that of beef in different regions of the country in January 1986. In northern Nigeria, far from the sea, fresh fish costs roughly twice as much as it does in other parts of the country (and twice as much as beef); and dried fish fetches a 50 percent premium. Chicken sells at a premium over beef not only in the north but also in the east, though the differences are smaller. The egg:beef price ratio was fairly constant across the country, with a small positive gradient from south to north. A similar analysis for June 1986 yields very similar results, suggesting little seasonality in the price structure.

A comparison of fish to meat prices over time suggests that fish is becoming relatively more expensive. Table 5.2 shows average prices of boneless beef and dried fish for western Nigeria for discontinuous periods between 1955 and 1986. Over this period

Average ratio of prices of alternative proteins  
to the price of fresh boneless beef

JANUARY 1986

zone	fresh fish/beef	dry fish/ beef	hen/ beef	eggs/ beef
north	2,0	2,5	1,5	0,7
middle	1,0	1,6	1,1	0,6
west	1,0	1,7	1,3	0,6
east	0,9	1,6	1,6	0,5
<b>NIGERIA</b>	<b>1,48</b>	<b>1,86</b>	<b>1,40</b>	<b>0,59</b>

NOTES

- This calculation was done by allocating the following cities to the zones above:  
north: Kano, Maiduguri, Sokoto, Bauchi, Kaduna  
middle: Yola, Makurdi, Minna, Jos  
west: Ilorin, Ibadan, Abeokuta, Lagos  
east: Enugu, Owerri, Port Harcourt, Calabar
- Prices were compared for fresh, boneless beef (1kg); fresh fish (1kg); dried fish (1kg); a medium "Agric" hen; and eggs (1 dozen).
- Source: Federal Office of Statistics, Retail prices of selected items, July 1985 - June 1986

Table 5.1

within cities. Graphs 5.13-5.15 show the same information, grouped by meat, rather than by city. They show a consistent pattern in non-drought periods of Kano meat prices being lower than Lagos and particularly than Enugu prices.

National average prices were shown for 1986-89 for most commonly consumed meats in table 2.1. The clustering of prices is tight. For 1986 to 1988 the spreads between cheapest and dearest are: 24, 26, 21 and 29 percent. The most expensive meat in 1986 is goat meat; the

the evidence is that fish was becoming relatively more expensive than meat at the rate of about 0.8 percent per annum.

Graphs 2.1 to 2.3 showed how meat prices varied over time

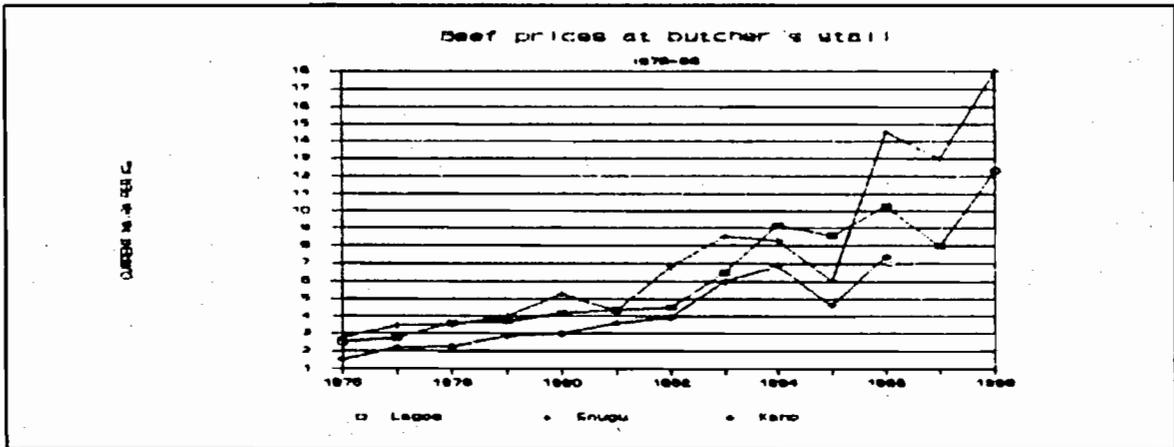
Average prices of beef and fish  
(current pence per pound)

	boneless beef	dried price fish	ratio fish/beef
1955	23,0	27,5	1,19
1956	23,9	30,1	1,26
1957	24,9	33,4	1,34
1958	25,1	32,0	1,32
1967	30,5	38,9	1,31
1968	29,4	43,2	1,47
1969	30,2	45,4	1,50
1970	35,2	50,3	1,43
1971	44,1	58,6	1,33
1986			1,62

NOTES

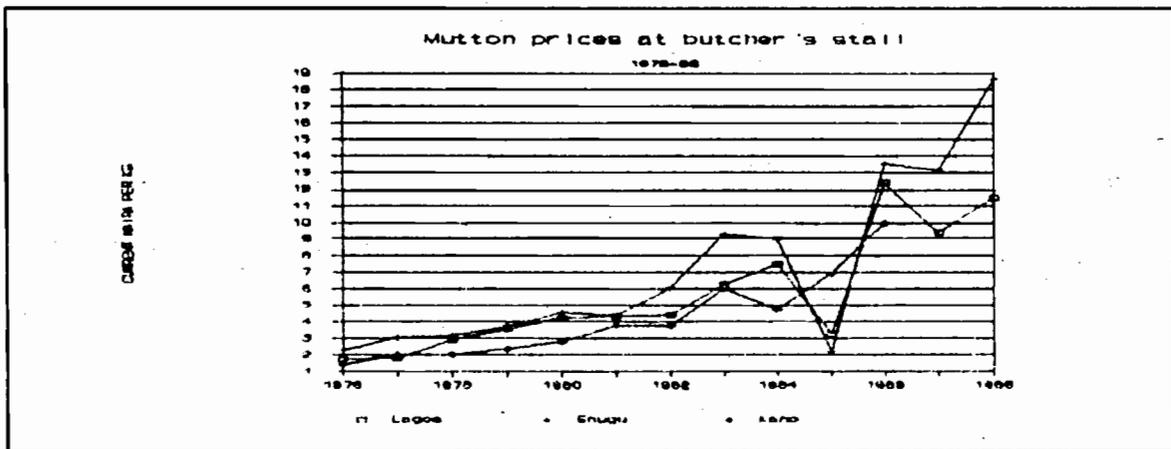
- Western Region average prices: 1955-58 are for: Lagos, Abeokuta, Benin, Delta, Ibadan, Ijebu, Ikeja, Ondo, Oyo. Source: Annual abstract of statistics 1960, table 72
- Lagos, Western and Mid-Western States 1967-71 average prices are for same locations minus Ikeja. Source: Annual abstract of statistics 1974, table 10.5
- Western states 1986 price ratio is for Ilorin, Ibadan, Abeokuta, Lagos and Akure, for January and July 1986. Source: Federal Office of Statistics, Retail prices of selected items, July 1985 - June 1986, various tables.

Table 5.2



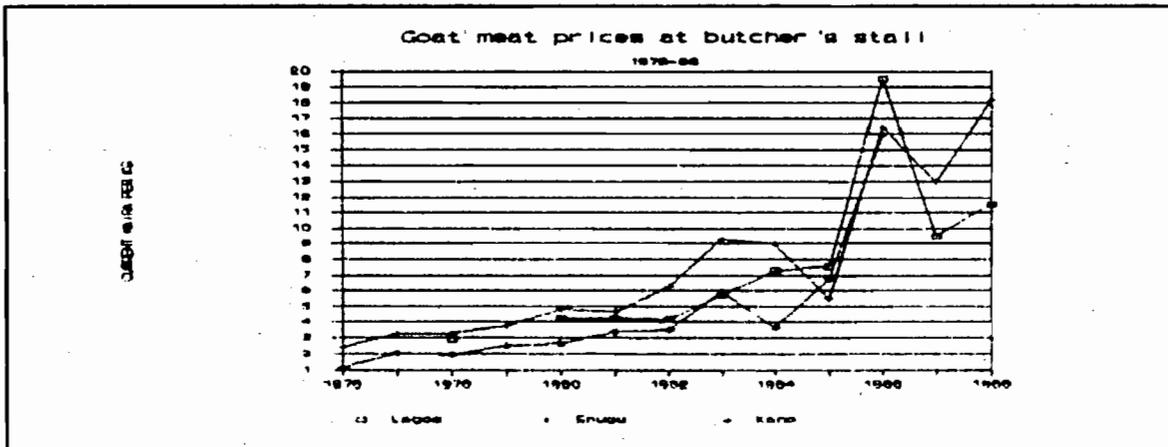
Graph 5.13

Source: FLD/FLPCS



Graph 5.14

Source: FLD/FLPCS



Graph 5.15

Source: FLD/FLPCS

cheapest is pork. In 1987, their places are taken by beef and camel meat, respectively. As noted in section 2.1, they are eminently substitutable.

### 5.6 Consumption levels

USDA data from the mid-60s quoted by Ferguson (1967:4) shows that Nigerians obtained only 10.5 percent of their protein from animal sources: 5 percent from meat, 2 percent from fish, and 3.5 percent from milk and eggs. Much of the rest would have come from yams, cassava, maize, sorghum and millet.

Official statistics for 1983-84 reveal that beef accounts for 70 percent of Nigerian meat consumption, goat meat for 18.1 percent, mutton for 6.8 percent, camel meat for 3.6 percent and pork for 1.5 percent. (FLD 1988:58) However, several corrections must be made to these data which are derived disproportionately from urban abattoir data.

Firstly, game is not slaughtered in abattoirs so the data take no account of bush meat. Particularly in southern Nigeria, bush meat plays an important, but poorly documented, part in protein consumption. It has been reported that about 80 percent of southern Nigerians "regularly" eat bush meat. In the 1970s Nigerians were estimated to have eaten around 90,000 tonnes of bush meat, accounting for 13 percent of animal protein supply. (Prescott-Allen 1982:15) The contribution of bush meat is almost certainly decreasing: a decade later Nigeria has less bush and half again as many people. Game will nonetheless continue to supply rural areas with significant amounts of meat for the foreseeable future.

Secondly, cattle and camels are over-represented in these data; sheep and goats are under-represented. Cattle are much more a source of urban meat than they are in rural areas. Conversely, goat meat is proportionately more consumed in rural areas, for ceremonies and simply for meat. Much of this consumption goes undetected. Sheep are important for Muslim ceremonies for which they are slaughtered unrecorded at home, both in the city and in the countryside. Finally, the proportion of camels in recorded slaughters is higher than normal on account of the drought in 1984 which led to a higher offtake than normal, other sources of meat being rare.

Thirdly, although the poultry industry is currently in severe difficulties, high growth in the 1970s led to poultry production levels which still allow it to bring significant amounts of meat to the table.

We may therefore tentatively revise the contributions from different species to meat consumption as follows: cattle 40%, goats 30%, sheep 12%, poultry 8%, game 5%, pigs 3%, camels 1%.

others 17. These estimates suggest that ruminants collectively contribute around 83% of Nigerian meat. We leave aside fish, eggs and milk, the other principal sources of animal protein.

Livestock slaughtered per 1000 people (using 1985 official slaughter figures)						
zone	cattle	sheep	goats	pigs	camels	horses/ donkeys
north	24	29	47	1	3	0
middle	17	11	18	2	0	0
west	42	11	11	2	0	0
east	11	2	16	0	0	1
<b>NIGERIA</b>	<b>25</b>	<b>17</b>	<b>30</b>	<b>1</b>	<b>1</b>	<b>0</b>

Zones are defined as follows:

- north: Sokoto, Kaduna (including the current Katsina), Kano, Borno & Bauchi
- middle: Niger, Kwara, Benue, Plateau, Gongola
- west: Lagos, Ondo, Ogun, Oyo, Bendel
- east: Anambra, Iao, Cross River (including the current Akwa Ikom), Rivers

Table 5.3

The official regional distribution of livestock slaughters is shown in table 5.4. Livestock-deficit western Nigeria tops the league in per capita annual cattle slaughters (0.042), emphasising the magnitude of the trade which imports so many cattle into the region. Otherwise the north dominates ruminant slaughters. Eastern Nigeria has a thin sheep market. Interspecies comparisons of this official data should be avoided for the reasons just discussed.

Official Nigerian livestock slaughters in millions					
	cattle	sheep	goat	camel	pig
81-83 avg	1.54	0.30	1.95	0.04	0.08
84-85 avg	2.04	1.18	2.43	0.12	0.11
87-88 avg	1.00	1.01	1.90	0.03	0.10

Source: FLD/FLPCS quarterly and annual reports

Table 5.4

Tables 5.4 and 5.5 show the variation of official slaughters over time. Slaughters of all species increased by at least a quarter during 1984-85 on account of the drought. They all then declined for reasons of herd reconstitution and SAP. For cattle the decline was the most severe: official 1987-88 slaughters were less than half their 1984-85 value. Most of the animals not being slaughtered were on the range in Niger.

The evolution of expenditure on meat over time may be inferred from household expenditure data from 1959-60 and 1983-84 in tables 5.6 and 5.7. At independence, the average Nigerian spent 14 percent of his budget on animal protein. Of these purchases,

600 -

he spent around 60 percent of his animal protein budget on meat. Of this about three quarters went on beef. Of non-meat protein expenditures, fish accounted for almost all. In 1983-84, the urban Nigerian spent 17 percent on animal protein. 60 percent of the value of his animal protein was consumed as meat and 24 percent as fish. His rural counterpart spent only 13 percent on animal protein, of which only 51 percent went to cover his meat expenditures but 40 percent on fish. Rural folk may have eaten less meat, or they may have eaten meat which they didn't have to buy in the market.

Official slaughters as percentage of 1981-83 average					
	cattle	sheep	goat	camel	pig
81-83 avg	100	100	100	100	100
84-85 avg	125	148	124	301	134
87-88 avg	61	126	97	86	113

Source: FLD/FLPC quarterly and annual reports

Table 5.5

These figures suggest that the average 1959-60 protein expenditures as a proportion of total expenditure fell within the range defined by the urban and rural expenditures in 1983-84. There has been no discernible evolution of the relative budget allocations to meat and fish.

Distribution of average monthly household expenditures

	shillings		naira	
	middle income	low income	urban	rural
	1959/60	1959/60	1983/84	1983/84
Food:	375.9	146.3	122.29	67.08
meat	78.2	31.7	23.14	11.33
fish	49.8	18.1	9.21	8.74
dairy	9.5	1.5	5.89	1.98
protein	137.5	51.3	38.24	22.05
total spent	1050.8	340.2	226.37	167.4
food/total (%)	36	43	54	40
meat/total (%)	7	9	10	7
fish/total (%)	5	5	4	5
dairy/total (%)	1	0	3	1
protein/total (%)	13	15	17	13
fish/meat (%)	64	57	40	77
meat/protein (%)	57	62	61	51

SOURCES:

1. Federal Office of Statistics, Urban consumer surveys in Nigeria: Lagos 1959-60, p38, appendix D
2. Federal Office of Statistics 1985, Social statistics in Nigeria 1985, table 7.25

Table S.6

Allocation of expenditure on protein: 1959-60 (%)

	middle income	low income
fresh beef	38	50
fresh pork	4	2
fresh mutton	5	4
fowl/duck	7	4
other (fresh) meat	2	0
TOTAL RUMINANT	42	55
TOTAL FRESH MEAT	56	60
tinned meat	1	2
fresh fish	15	11
dried fish	11	10
stock fish	4	9
shell fish	3	3
tinned fish	3	3
TOTAL FISH	36	35
eggs	7	3
TOTAL PROTEIN	100	100

SOURCE:

Federal Office of Statistics, Urban consumer surveys in Nigeria: Lagos 1959-60, p38, appendix D

Table S.7

## TRANSPORT

Normally details of commodity transport would be discussed as a detail of the structure of the market. However, changes in the transport of livestock over the last decade have been the most important aspect in changing the structure of the livestock market. They are therefore presented before the discussion of the market itself.

### 6.1 Road transport of trade animals

Almost all animals moving more than a few kilometres in Nigeria travel by lorry. Even in rural areas in northern Nigeria animals frequently arrive at market in pick-ups, and leave for nearby towns in small lorries, or for distant destinations in 30-tonne tractor-trailers. Thus the scale varies according to the need but the solution is now almost always motorised.<sup>21</sup>

The trader who has formed a herd of trade cattle at an assembly market pays the sales intermediary his fee of forty naira per head and the local market tax of perhaps one naira per head. He then and there rents a truck to transport them to a major urban centre. Few traders own their own trucks.

The 30-tonne lorries used for most long-distance cattle transport are open, general-purpose, long-bodied lorries with high metal sides. The July 1989 rental cost of such a lorry from Kano to Lagos (1100 km) was 3500 naira. The cost per kilometre is thus 3.20 naira or about 95 CFA francs at the prevailing parallel market rate. About 25 cattle, weighing up to ten tonnes and worth about 75,000 naira, are loaded into the truck. The transport cost per head of cattle is 140 naira, the cost per tonne is about 375 naira, and the total cost is about 4.5 percent of the value of the herd. From the trucker's point of view, cattle are a useful backload after having hauled general goods up from the south. The rental fee in the other direction cross-subsidises the movement of cattle south. This is less so in the post harvest season when crops often compete for southbound lorries. Then lorry prices increase.

A market served by trucks on a regular basis is likely to be equipped with a loading ramp, which need be little more than an

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<sup>21</sup> The only exceptions to this appear to be beasts of burden, donkeys, horses and camels, which are being used as such or being brought to market to be sold.

earth ramp edged with mud bricks to hold the earth in place. The mid-1989 loading cost appeared to vary from 50 to 125 naira. Once loaded, the animals will probably not be fed or watered until they reach their destination between 24 and 36 hours later, though sometimes a little fodder is put on the sand on the floor of the lorry. The trader or his representative travels in the cab with the driver and an attendant rides in the back to watch the animals. Although they are officially meant to have their horns sawn off to protect them from injuring their neighbours, this is now never done. Instead, the horns are lashed to the rails along the top of the sides of the lorry to prevent the herd moving en masse when the lorry accelerates, decelerates or corners briskly. This doubtless reduces injuries but the animals still often emerge bruised at their destination.

Information on how much the attendant is paid varies greatly: two figures given in July 1989 were 100 and 400 naira. Given other information on wage levels in Nigeria the former seems more appropriate. The latter figure is more likely to be the payment made to a trader's representative for managing the whole trip.

Along the route each state exacts a transit tax of one to five naira per head, coming to a total of about 250 naira. Sometimes this may be alleviated by bribing the official who collects the tax. Policemen and other officials occasionally extort bribes, but this makes relatively little difference to the overall transport cost. Much less frequent but much more serious is highway robbery at night in southern Nigeria: loss of livestock and life make this the worst fate which can befall the trader. This risk is difficult to evaluate and can be all but avoided by scheduling all travel in southern Nigeria during daylight hours.

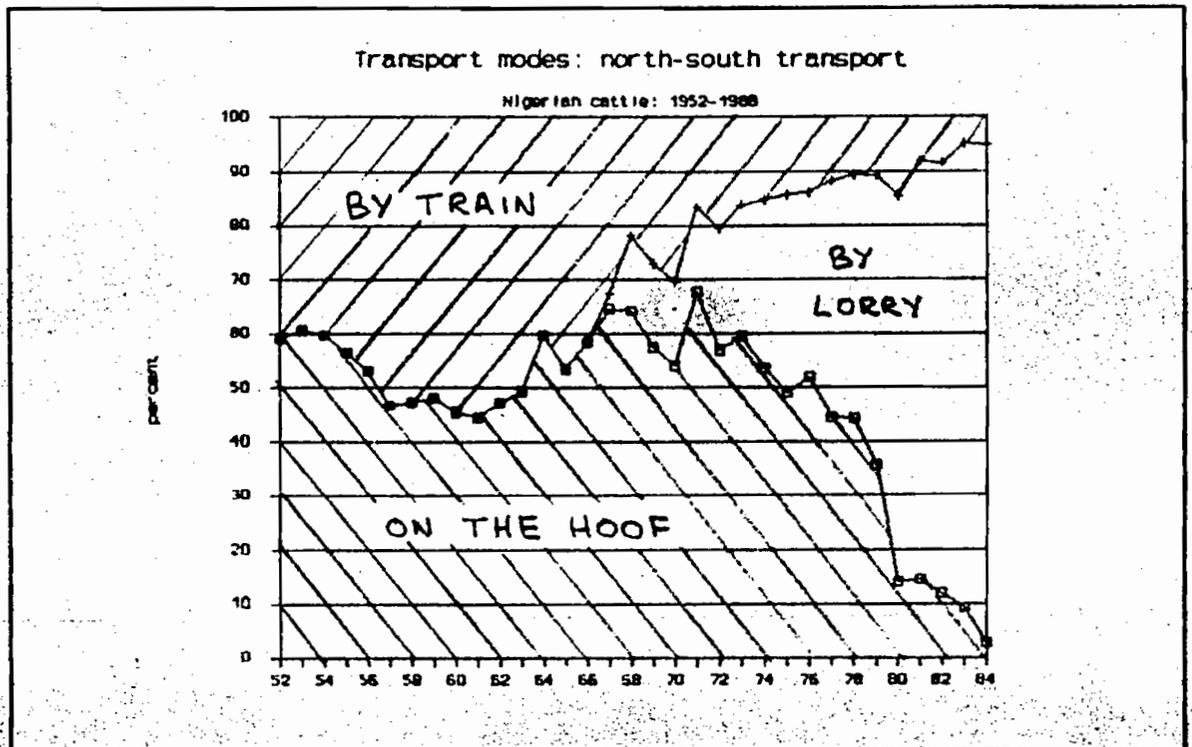
Being neither fed nor watered, and enduring high stress, the animals lose weight during the journey. They are also bruised and wounded by each others horns or the lorry itself. Moreover, one trader estimated that one animal in 20 lorry-loads (0.2 percent) dies en route. Weight losses are mostly water losses which can be easily restored, but include tissue loss probably equivalent to the longer, but less strenuous, rail journey which Ferguson (1966:85) puts at five percent. The bruising and wounding may incur almost no economic loss if the meat is destined for the less discriminating general market.

Trucking of small ruminants and (much less frequently) camels follows the same lines. It is difficult to load the same value of small ruminants into a standard 30-tonne truck: transport costs rise to over seven percent of the purchase price of the herd. Older, wooden-framed trucks more popular in the south of the country have approximately half the carrying capacity of the newer long-bodied vehicles. However it is possible to insert horizontal layers of planks at various heights to form platforms in these trucks. These can be used to provide two or three decks

suitable for transporting small ruminants. In this way they can carry at least as many small ruminants as the larger trucks, presumably at a much lower cost per head.

## 6.2 The demise of livestock transport by rail and on the hoof

Road transport has not always dominated the livestock trade in this way. Graph 6.1 shows transport modes for cattle being sent down south from northern Nigeria from 1952 to 1984. Until the early 1960s all cattle were sent south either by rail or on the hoof, in fairly equal measure. It was then the first cattle began to arrive in Lagos by lorry. (Ferguson 1967:43)



Graph 6.1

Source: Nuru 1982, Ferguson 1968, République Française 1969, FLD

Trekking animals south takes weeks, and leaves them prey to trypanosomiasis and other diseases of the sub-humid and humid zone, though the threat of disease varies greatly by season. It is also very demanding on the animals, leading to visible weight losses if the drover is not skillful. Large, mature males are most likely to bear up under such stress and therefore command a premium for trekking.

"Since only cattle of more than six years of age are able to cover the long distance between the producing and consuming areas on hoof, dealers in Mali pay for such cattle a price 10 to 30 per cent higher than for younger animals of the same or even better quality." (Mittendorf and Wilson 1961:35)

"A price differential is paid for size partially because large, rangy cattle are in great demand as trade cattle. They lose less weight in transit and are more likely to survive the rigors of travel. Large cattle also have a bigger fifth quarter, and because tenderness of meat is of no consideration, butchers pay more for them, regardless of age or carcass quality." (Ferguson 1967:50)

Trekking does, however, cost very little. It also allows for commercial opportunism: if the drover stumbles upon high enough prices along the way, he can sell the animals and head home before even reaching his intended destination. However, if he does continue on to the large urban markets in the south, he is likely to lose some animals along the way, either leaving them to die by the wayside or selling them at very low prices if any buyer happens to present himself. Once he arrives in the final consumption market he has on his hands animals with short life expectancies and cannot risk holding out long for high prices. A skillful drover can make a good profit for the owner, but has to know the pace which balances the stress and weight loss of speed with the disease risk of spending too much time in the trypanosomiasis-ridden zone. (Ferguson 1966:85-86, Cohen 1965:9)

In contrast, rail transport is more expensive and less flexible, though it reduces losses considerably. The trip itself is stressful: the animals are rarely fed or watered along the way, and they can suffer from heat if the train stops for any length of time during the day. However, if the train timetable is observed the journey time from northern loading points to major southern markets does not exceed 48 hours. Rail transport allows a greater range of animals to be taken south: no longer is it necessary to select only the biggest and strongest beasts. Further, those animals arrive in southern markets in much better health and with a much longer life expectancy than those which are trekked down. If the trader wishes to hold out for high prices he is in a much stronger position to be able to do so. The skilled drover is no longer necessary: relatively unskilled labourers can load the cattle car, accompany the animals, and unload them at the other end. Perhaps most importantly, however, rail transport allows a very fast turnover of capital. Instead of tying up considerable sums in trekking for as long as two months the trader can hope to complete the cycle in a fortnight. (Cohen 1965:9-10)

Trekking and rail transport co-existed quite happily for decades. Trekking took place parallel to the railway lines, but at some distance from them, and played an important part in supplying the middle belt and southern populations which were not served by the railways. Trucking was not a serious option in the colonial era: roads were poor (leading to slow speeds and bruised animals) and the capacity was low.

Gradually the road network improved. The first lorry-loads of cattle arrived in Lagos in 1962. In early 1965 there was a general strike which crippled the railways. For the first time, significant numbers of cattle were shipped from Kano and Bauchi to Lagos. Thereafter, each disruption in the rail network provided openings for increased trucking. (Ferguson 1967: 43) By the eve of the first oil price rise, trucking already accounted for a quarter of cattle transport. During the petrol boom from the early 70s to the early 80s, great sums were spent in building all-weather roads so that, for instance, the Kano - Lagos journey was reduced to less than 24 hours. The great surge in imports included many 30-tonne trucks -- larger than their predecessors -- and led to huge shipments of materials being trucked north from the ports in the south. There were few backloads for lorries returning south, so trucking of cattle from north to south was relatively cheap. Another result of the petrol boom was the heavy subsidisation of petrol itself, which continues to this day.

By the onset of the second oil boom, trucking had captured half of a market which had grown from 300,000 head of cattle at the end of the civil war in 1970 to 600,000 a decade later. The 1980s saw a consolidation of market share: by 1984, 95 percent of 900,000 animals were being moved south by truck. In 1987, the Nigerian Railway Corporation (NRC) stopped livestock shipments because of a shortage of locomotives. Fifteen new locomotives are to be bought in 1989, but the railway needs many more for efficient operation and it seems unlikely that any of them will be allocated to livestock transport. (Oni and Nwankwo 1989:3)

Few Nigerians working in or regulating the livestock trade can now imagine returning to either trekking or rail transport. Successive military and civilian regimes have supported the policy of subsidised motor fuel prices (relative to world market prices) as an impetus to the integration of the national economy. At whatever cost, the policy must be judged to have attained its goal. Nigerians have embraced the commercial opportunities this subsidy has provided. They have become mobile, and greatly value that mobility. It seems politically impossible, especially in the context of other hardships which SAP imposes on the population, that the government should significantly increase fuel prices. If they remain low until 1992, when power should be returned to a civilian government, political pressure to retain

these low levels is likely to be even more difficult to resist than for a military government.

### 6.3 Transport of meat

Nigeria has a fleet of refrigerated lorries, mostly used for shipping frozen fish from southern ports to interior distribution centres. In 1989, one Sokoto fish merchant was sending 20 percent of his refrigerated lorries south again without a backload. Of the backloads he could find, he estimated that only 10 percent needed the refrigeration his lorries offered.

Such transport might be the cheapest way of shipping Nigerian meat south. However, in order that the meat does not assume the smell of fish the interior of the lorry must be cleaned with high-pressure steam.

Smoked goat meat-produced in Sokoto is profitably flown to Lagos for sale.

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## THE LIVESTOCK AND MEAT MARKET

### 7.1 Market structure

#### 7.1.1 Market chains

The traditional market structure was built around long-distance north-south chains joining together major northern (supply) and southern (demand) markets. In the principal northern markets, such as Kano, Sokoto and Maiduguri, traders assembled herds destined for the south. The animals which formed these herds flowed in along trade routes ramifying from these principal assembly markets to smaller assembly markets which, in turn, drew on numerous small collection markets in the heart of the countryside. Imported livestock from countries such as Niger was also drawn into these centres along the same routes. Nigerian livestock routes are extensions of Nigerian livestock routes.

The long-distance transport of the animals was effected by rail or on the hoof along established stock routes to markets in the large consumption centres in the south, such as Ibadan, Lagos, Enugu and Port Harcourt. These markets sold many of the animals to local butchers, but also served to distribute animals to smaller markets in their hinterlands. (Ferguson 1967:43)

The animals would change hands frequently as they were transferred between links of the market chain, particularly in collection and assembly in the north, but also in distribution in the south. Ferguson (1967:13) noted that "[o]wnership may change 6 to 8 times before final sale" in the cattle trade in the 1960s.

The rise of road transport has greatly reduced the number of links in the market chain. Most parts of the country, including the regions along the border with Niger, are now within 50 kilometres of an all-weather road, opening them up to lorry transport. Livestock markets along these roads have blossomed. Former small collection markets have become major loading points for long-distance trade for the south, and for the fast-growing cities of the north. Thus Kano market, once a major assembly market, is now mostly a final consumption market, and even that function is shared with markets such as Wudil, about forty kilometres distant, now practically in Kano's suburbs, and to which local butchers can easily drive.

The major southern markets have similarly lost some of their distribution trade. Lorries laden with livestock can drive directly to the smaller cities and large towns in their hinter-

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lands, sidestepping the former poles. This trade is thus substantially lost to the large urban markets. However, urban population growth has been such as to ensure that active livestock markets still thrive in these larger cities.

Flows of price information along market chains are generally by word of mouth. Few traders use the telephone to verify prices and there are no regular radio broadcasts of market information. Traders say that even if they were to obtain more price information, it would be of limited use given the frequency of price fluctuations. They have no confidence that any prices would still apply when, say, 24 hours later their consignment arrives in what appears to be a high price market at the moment of deciding the destination. They claim that in the market chosen they may as easily face losses as profits.<sup>22</sup>

### 7.1.2 Physical infrastructure

The marketplaces themselves are much like those in Niger, often equipped only with rudimentary means of constraining the animals and grouping them by species, and access to water. Larger rural northern markets generally have a control post, a lorry-loading ramp and a vaccination corridor. Maiduguri market has installed floodlights to illuminate cattle loading ramps.

Rural markets have no overnight facilities for animals. As weekly markets surrounded by sources of fodder, and with relatively few robbers, they have no need. In contrast, urban markets, especially in the south, are equipped with guarded pens to protect the animals at night. For small ruminants they may be roofed.

Recent trends in livestock transport have been towards greater capital intensity, in contrast to little evolution in physical infrastructure -- or in market procedure, discussed below.

### 7.1.3 Market procedures

Urban markets take place daily. Rural markets are weekly in the north, but have periodicities of three, four, six and eight days further south.

Pricing depends on visual assessment of weight, age and health in the context of market supply and demand. No grading system or

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<sup>22</sup> McCoy (c1970:33) recommended price information be broadcast to enable a higher offtake rate and raise market efficiency. This recommendation is echoed by Bishop (1972:26), Singh and Ijere (1985:21) and Adeykanye (1985:18).

livestock scales are used; attempts to introduce grades and sales by weight have been resisted.<sup>22</sup>

Markets in Nigeria, as in much of West Africa, evolved in the pre-colonial era. One result of this evolution is that haggling is the process of price formation, unlike, for example, East Africa where the British introduced the auction to perform the same function in the markets they set up. Discussion of varying degrees of confidentiality takes place between buyers and intermediaries who represent the seller. Receipts are available.

The general lack of market infrastructure does not seem to hinder marketing operations. The lack of open sales by weight and a means of grading do, however, make life more difficult for those who wish to monitor market activity.

## 7.2 Market actors

The cast of characters in the Nigerian livestock market is identical to that in the Nigerian market. The major operators are butchers, traders and sales intermediaries.

### 7.2.1 Butchers

Successful butchers never dirty their hands with animals, but act as business managers and financiers, purchasing animals, organising their slaughters by "apprentice butchers" (who may never graduate from their apprenticeships), and selling carcasses or quarter-carcasses to retail butchers. While discussing the livestock trade we will refer only to these wholesale butchers;

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<sup>22</sup> Livestock grading systems have been continuously demanded by foreign advisors (McCoy c1970:34) and Nigerians alike. They have been defined but not used. The Nigerian Livestock and Meat Authority laid out a well-designed classification scheme for livestock grading which never caught on. See the Livestock and Meat Authority's A national market classification and grading system and Explanatory guide for the completion and disposition of imported trade cattle classification forms, (Livestock and Meat Authority c1971, undated). Livestock scales placed in market were ignored or abused. Only the government wanted them, not the existing traders. A grading scheme is currently an irrelevance for a market where perhaps 90 percent of the market is for meat which will not be divided into classic cuts but will end up in a stew. As buyers move to buying by weight, some portion of the traders may come to value the possibility of checking the quality and quantity of their animals against objective benchmarks. A few buyers already prefer to buy by weight, but there is no sign that this trend is snowballing. It is doubtful if such measures would make the market significantly more competitive.

in the later discussion of the meat trade we will discuss both the wholesale and retail butchers.

Many butchers in Nigeria are Hausa even in non-Hausa areas. Hausa butchers belong to a hereditary professional group which traditionally monopolises the trade, at least in northern Nigeria. Although they enjoy no great social prestige, they are said to make considerable profit from work that others do not want to do. In addition, there is great solidarity in their ranks when it comes to collective action to defend their interests -- and the evidence is that their interests lie in the status quo.

Walker (c1970:26) asserts that development of the livestock and meat industry in Nigeria depends on the level of co-operation and trust between the government and the butchers:

"The butchers of Nigeria are one of the oldest and best organised unions or trade groups found in the country today. Socially they are at the bottom of the scale, although they basically control the flow of cattle within the country.... Lack of co-operation of this group is responsible for the limited use of the slaughter houses. Before a thriving industry can develop full co-operation must be obtained from this group. State and Federal government organisations may have to adopt new ways of approach to secure their confidence."

Specifically he recommends:

"Patronise the butchers' union and discuss with them the whole problem confronting the industry and see what solution they (the butchers) can make towards the full use of all the slaughter houses in the country. Care will have to be taken with each change introduced so there will be no friction generated in the present system carried on by the traditional groups or in their distribution system. Time will bring changes, but they will not occur overnight."  
(Walker c1970:27)

In the same vein, Ferguson (1967:70) predicted that moves toward modernisation, in particular the production of chilled meat, might be resisted by butchers if it is seen to threaten their livelihood. He encouraged moves towards gradual modernisation.

Two decades later, in 1988, Kano butchers refused to move their operations from the old (but still operating) abattoir in Kano to the much larger industrial abattoir outside the city. They had not been consulted in the planning procedure which led to the construction of what is believed to be the largest abattoir in West Africa, and were clearly upset by having been ignored. They also objected to:

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- the use of the stunning machine the explanation of the operation of which left them unconvinced that the animal was not dead when its throat was slit, thus risking contravening the rules of Muslim slaughter
- the distance from town of about 10 kilometres which would incur extra costs for them
- the unemployment which the more efficient abattoir would bring about by allowing fewer folk on the slaughter floor
- the risk of not being able to identify their carcasses due to the fact that they would not be allowed representatives on the slaughter floor

Confronted by the butchers, the state conceded several of these points and tried to make amends, but it was too late and, a year after "opening", the new abattoir only provides what the Chief Veterinary Officer described as a "skeletal service". (See also sections 7.7.2 and 7.8.2.)

In another example, a Sokoto fish merchant with no current investment in the livestock trade expressed interest in shipping south meat in refrigerated lorries in which he currently ships frozen fish north. When asked what had so far stopped him from doing so, he cited the unwillingness of local butchers to co-operate in slaughters for the chilled meat trade (among other reasons).<sup>2</sup>

The conclusion is that the butchers are a conservative group with significant power which they will use to retain their influence within the livestock trade. They prefer to work in traditional ways, providing meat for immediate retail sales, and have shown little interest in playing a role in the chilled meat trade.

#### 7.12.2 Traders

Livestock traders buy and sell animals. They tend to specialise in either cattle or sheep and goats. Before the rise of trucking, there were several subspecialisations in links along the market chain: northern herd assembly, long-distance shipment, or distribution within the south. Small operators could perform either the first or third of these. Nowadays, the shorter market chain concatenates these functions, and most traders must have access to enough working capital or credit to be able to ship a lorryload of 25 cattle or 125 small ruminants from assembly market to consumption market.

<sup>2</sup> Conversation with Malami Sabo of Malami Sabo (and Sons) Ltd. in Sokoto City, 25.vii.89

In Hausa society, livestock trading is not, in principle, a hereditary profession; anyone can play the game. However, at least in certain areas, it is Hausa wholesale butchers who dominate the trade. Kano livestock officials and the man who was reputed to be the largest livestock trader in Kano both claimed that almost all large-scale, Kano-based traders came from butcher families.

The two rôles may be quite openly merged. In the current absence of profit in sending livestock from Kano State to southern markets, the traders were uniquely buying from rural markets and slaughtering in Kano City.

### 7.2.3 Sales intermediaries

The sales intermediary (dillali) combines several functions under one hat (hula). Firstly, he brings together the seller and the buyer negotiating with the latter on the former's behalf. Secondly, he provides an insurance service, providing guarantees to the seller that the animal is not stolen and, in the case of sales made on credit, to the buyer that payment will be forthcoming. Thirdly, he offers food and lodging to the seller who needs it, for as long as it takes to sell his animals. For his services he receives a sales-fee, paid by the buyer, amounting to up to five percent of the animal's sales value.

There are barriers to entry to this profession. The prospective intermediary must be known to be trustworthy to those buying and selling, for which prior connections in the livestock trade are valuable credentials.

The job of sales intermediary is, like that of trader, also in principle open to all comers. Members of butcher families do not necessarily dominate the profession, but they clearly have an inside track. Some butchers by birth are also intermediaries and/or traders, the choice depending on the availability of capital for trading. (Adesipe 1984:6)

## 7.3 Conduct

### 7.3.1 Collusion

As in Niger, the conduct of the marketing system in Nigeria has been the subject of some debate. Some observers argue that there is collusion between traders (horizontally), and between traders and sales intermediaries (vertically), to the loss of both livestock raisers and meat consumers. The glue which enables continued collusion over time is said to be some amalgam of religion, language and ethnicity. The northern (often Hausa) men who run the trade have social (often family) links which reinforce solidarity even in times of market disruption. They do not co-

operate as readily with non-Hausaphone, non-Muslim traders who try to break into the business.

"The marketing of cattle throughout West Africa is said to be controlled by a relatively small group of Hausa cattle dealers centered in Kano." Ferguson (1967:14)

This is particularly noticeable in southern, non-Hausa Nigeria where Hausa middlemen installed themselves as an oligopoly of middlemen during the colonial period, apparently institutionalising Hausa business practices in the livestock trade in their adopted cities. These middlemen on southern markets offer more than one might expect of a sales intermediary. They take charge of the animals from the moment of the arrival of the lorry, organising their feeding and watering, and their security. They offer food and lodging for the trader for as long as it takes to sell the animals and in a social environment in which he feels comfortable. On the trader's departure they typically give him a small gift, in kind (such as perfume) or in cash (perhaps his return fare home). (Cohen 1965, Hill 1966)

Some would say that a series of such arrangements along the market chain dominate market conduct, amounting to a vertically-integrated market chain controlled from first purchase to final sale (and often to slaughter and the sale of meat) and that in this context there is ample opportunity for collusion and price fixing. The confidentiality which haggling permits, in comparison to the openness of auction bidding, makes charges of collusion and oligopoly less easily deflected.

Therefore, it is maintained, there are social, ethnic, religious and/or linguistic barriers to entry into the livestock trade. It is easier for Hausa and other northern Muslims to make valuable business contacts, obtain price information, or be granted credit than it is for non-Muslim northerners or Muslim Yuroba from the southwest who, in turn, find it easier than southern non-Muslims. This is very obvious to non-northern Nigerians. See, for example, Adekanye (1985:16).

It is difficult to defend the livestock trade against claims of ethnic or religious discrimination. "Each group [traders, sales intermediaries and butchers] is a highly organized and closed guild." (Ferguson 1967:65) However, to condemn the market system, this behaviour must be linked to a reduction in market efficiency.

The vertical integration may not be as tight as it is purported to be. Traders who sell (rather than slaughter themselves) do not always do business with the same intermediary, particularly in northern markets with which they are familiar (where they perhaps feel more confident that other market contacts can easily be made) but also in the south. Assembly and final consumption

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markets are so numerous, routes between them so many, communications so poor, prices so variable, and the commodity so difficult to stock that it is difficult to imagine an oligopoly having control of the livestock market.

Recent evidence against an all-powerful vertical integration shows that the flow of animals from Kano to the south of Nigeria has recently dried up. Prices reported for 1988 suggest an inverted price gradient and interviews in Kano in August 1988 confirmed that no livestock shipments had left Kano for south for the past few months. (FLPCS 1989) Whatever has brought about this seemingly anomalous situation seems to be beyond the control of the northern "mafia".

Moreover, at each level in the market chain, the participants are in competition with each other. A trader will try to buy the same animal as another and will bid up the price (at least for a while) in order to do so. Similarly, intermediaries are said to be in competition with each other for traders' business. There does not seem to be any direct evidence that at any one stage in the chain market power was concentrated to the extent of changing prices in a systematic way or that small operators were being squeezed out of the market by artificially low prices with which they could not compete.

### 7.3.2 Too many links in the market chain

Before the dominance of lorry transport of animals, there were those who argued that there were too many links in the market chain, and that, with each intermediary between the herder and the meat consumer, market efficiency dropped. "The role of middle men in cattle marketing results in complexities in sales and purchases and [is] often exploitative." (Nuru 1982:31) Successive layers of profit were allegedly creamed off, unnecessarily raising prices. Cases were cited of animals being sold and resold on the same market on the same day, their price increasing with each sale and with no physical change in the animals themselves.

If this accusation were once true, it must be less so now because lorry transport has noticeably shortened the market chain. Traders try to take animals directly to the final consumption market, as long as it is not too minor. The average number of changes of animal ownership is now probably three or four, including the sale by the herder and the purchase by the butcher.

It is difficult to reconcile this accusation with the former charge that the market is an oligopoly, yielding excessive profits to a select few. Either there are too few market actors or too many. The very fact that market conduct is attacked from both sides, suggests that the truth lies somewhere in the middle.

#### 7.4 Market performance

The Federal Government has stated that the cattle trade is said to be in the hands of "a relatively few magnates" who "each handle millions of naira worth of cattle annually". (FMANR and the Green Revolution National Committee 1981:129) It does not, however, attack this alleged concentration. Moreover, it neither accuses these individuals of oligopolistic practices at any particular marketing stage nor specifies the extent, if any, to which their activities reduce market efficiency.

Ferguson (1967:69) evaluates the level of profits made by sales intermediaries on the Ibadan cattle market in 1963. He found it was around 2.5 percent of the value of the animal being sold, from which had to be subtracted employees wages and the cost of housing and feeding the traders whose cattle were being sold. He asserts: "Because the agents assume a large financial responsibility and serve as market barometers, the commissions seem to be in line with the services rendered." This analysis, coupled with another which allows him to deduce a 13 percent markup for Ibadan butchers, leads him to conclude: "There is little reason to condemn and completely overhaul the present marketing system on the basis that it is not doing a good job."

Adekanye (1985:15-16) discusses the cattle trade in Anambra State in the 1970s. He claims that "although cattle wholesalers constituted only 6.7 of the middlemen, they controlled 77 percent of the trade, valued at N 271,000."<sup>23</sup> He asserts that the efficiency of Nigeria's food marketing is in general low. "However", he concludes, "the inefficiency appears to be due more to the environment and inadequate market-related infrastructures than to exploitative activities of middlemen".

Adesipe (1987:201) investigated the conduct of the Zaria cattle market in the early 1980s. He found that "30 percent of all traders were handling more than 70 percent of the sales... indicating a high inequality in size distribution and seller concentration, and hence imperfect competition". However, he also observed that there were many sellers and buyers, detected no evidence of collusion, and concluded that the market was efficient: marketing costs were only six percent of the value of the animals. The only barrier to entry was the high operating capital needed to participate.

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<sup>23</sup> Adekanye's source for this assertion is: Okeke, E. 1977, The structure, conduct and performance of beef cattle marketing in Anambra State of Nigeria, M.Phil. dissertation., University of Ibadan

"Livestock marketing in Nigeria follows traditional but efficient lines...." (Federal Ministry of Agriculture and the Green Revolution National Committee 1981c:129)

"[O]n the surface at least, the system appears to operate smoothly and gets the cattle to the markets where the highest prices prevail." Ferguson (1967:15)

Indeed, the consensus appears to be that whatever collusion exists in the Nigerian livestock market does not compromise its economic efficiency. See also: McCoy (1969: 31), CRED (1979:33), and Francis (1988:11-12).

## 7.5 A market model

### 7.5.1 Trading small ruminants between Sokoto and Lagos

Recently-collected information allows a market model to be built for a typical north-south link in the market chain in mid-1989. Table 7.1 shows the prices paid for animals when they are bought in Sokoto and sold in Lagos, the costs of business along the way, and the inferred profits. 75 rams are bought at 400 naira each and 50 goats at 225 naira each. In the marketplace the buyer pays an LGA sales tax and the intermediary's fee. It is assumed that he holds some of the animals while buying others at nearby markets. There are costs for water, fodder and security of those he has already bought during this period.

He rents a lorry from Sokoto to Lagos for 3000 naira and pays 30 naira to load the small ruminants into it. Along the way he pays 285 naira of state taxes and 50 naira-worth of bribes. The shrinkage and deaths along the way are estimated at 2 percent. He pays for his own food along the way, but not in Lagos where he lodges with a sales intermediary. Indeed, once having arrived in Lagos, he need pay nothing more: the intermediary takes care of the animals' fodder, water and security, and of the trader's board and lodging. His return journey to Sokoto is also paid by the intermediary (who received his commission from the buyer).

His fixed costs are: travel to markets to buy the animals, local sales tax, intermediaries' commissions, holding costs (while he completes his herd in other markets), and loading the lorry. They amount to 1140 naira in this scenario. His variable costs (other than lorry rental) are: state taxes along the route, bribes, losses and shrinkage, and his own food along the route.

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Market model: Sokoto-Lagos small ruminant trade: mid 1989

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		Prices/costs	
		as % of	
S O K O T O -- L A G O S		Naira purchase price	
Travel to market: 3 @ N 5		15	0,0
Purchase:			
50 goats @ N 225 each	11250		
75 rams @ N 400 each	30000		
		41250	100,0
Local sales tax @ N 1 each		125	0,3
Intermediary's fee @ N 5 each		625	1,5
Holding costs (3 days)		375	0,9
water	50		
fodder	250		
security	75		
Rent lorry		3000	7,3
Loading (with ramp)		30	0,1
Taxes on lorry in states:		285	0,7
Sokoto (Illela)	30		
Sokoto (Yauri)	5		
Niger (Jebba)	50		
Kwara (Ilorin)	50		
Oyo (Ibadan)	70		
Lagos (Lagos)	80		
Bribes		50	0,1
Losses and shrinkage (2%)		825	2,0
Food on road to Lagos		10	0,0
Yaxi fare: Lagos-Sokoto (gift)		0	0,0
Food on road to Sokoto		10	0,0
Total cost		46600	113,0
Sales price in Ibadan			
75 rams @ 400 each	30000		
50 goats @ 300 each	15000		
		45000	
Profit		-1600	
Return on investment			-3,43 %

Table 7.1

Intercity livestock trade:  
1988 average profit as a  
percentage of purchase price

	bulls	rams	goats
Konni-Sokoto	-13	-1	-17
Konni-Lagos	1	-13	40
Konni-Ibadan	13	-16	-5
Sokoto-Lagos	18	-11	72
Sokoto-Ibadan	27	-18	18
Maradi-Katsina	-9	-26	-44
Maradi-Lagos	-5	-25	8
Maradi-Ibadan	3	-31	-26
Maradi-Knugu	68	-39	4
Katsina-Lagos	3	0	85
Katsina-Ibadan	12	-9	28
Katsina-Knugu	85	-16	89

Table 7.2

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They are evaluated here at 1180 naira, almost the same as the fixed costs.<sup>26</sup>

We assume he sells his goats for 33 percent more than he paid for them and his rams for the same price. Taking into account his costs, he loses over 1,600 naira on an investment of 41,000 naira, representing a loss of about 3.5 percent.

#### 7.5.2 North-south trading in 1988

The same model may be used to analyse the real profit levels to north-south livestock trade between a variety of markets in Niger and Nigeria for different species over a period of time. Most recent data is for 1988. Using the same cost structure as in the previous model, costs are divided up into transport costs, fixed costs and other variable costs. For livestock shipments from Nigerian markets it is assumed that no frontier formalities are observed. The analysis is done on a per head basis.

Transport costs are calculated on the basis of the length of the journey. For each pair of markets considered, the length is multiplied by an assumed cost per kilometre of 11.8 kobo per bull, 2.7 kobo per ram, and 2.1 kobo per goat. These were based on 25 cattle, 110 rams and 140 goats per lorry.<sup>27</sup>

Fixed costs cover the traders travel to market to buy the animals, sales taxes, intermediaries' commission, holding costs while assembling the herd, and loading the animals into the lorry. They are evaluated at 1200 naira for all species.

<sup>26</sup> The holding and shrinkage costs may be overestimates but, on the other hand, the animals are assumed to weigh 20 percent more in southern markets and the FLPCS prices in those markets are thus increased by the same factor.

<sup>27</sup> For animals starting the journey from Maradi, the short trek of animals to the border is assumed to cost the same per kilometre as if they had been trucked.

Intercity livestock trade: percentage of months of positive profits			
	bulls	rams	goats
Konni-Sokoto	27	33	30
Konni-Lagos	45	30	82
Konni-Ibadan	64	20	27
Sokoto-Lagos	83	27	100
Sokoto-Ibadan	75	18	73
Maradi-Katsina	25	0	0
Maradi-Lagos	33	8	67
Maradi-Ibadan	33	8	8
Maradi-Enugu	100	0	56
Katsina-Lagos	42	42	100
Katsina-Ibadan	33	33	75
Katsina-Enugu	100	33	100

Table 7.3

Other variable costs cover state taxes and bribes along the route, losses and shrinkage, and food for himself both coming and going. They are evaluated at 1.18 naira per kilometre for each lorry.

Prices are from the draft 1988 FLPCS annual report (FLPCS 1989) (for Nigerian markets) and from Ministère des Ressources Animales data (for Nigerien markets). Markets were chosen on the basis of their importance and the availability of data. All costs are deflated by the CPI from mid 1989 levels (of section 7.5.1) to the appropriate level for each month in 1988. CFA franc prices are converted to naira at the black market rate appropriate to the month in question.

The net revenue -- sales price minus purchase price -- is calculated and from this is subtracted total costs to determine the imputed profit level. The profit is also expressed as a percentage of the purchase price.

Table 7.2 shows the average percentage profit over 1988 for 12 different routes. 18 out of the 36 routes (50 percent) showed a positive average profit over the year. For routes starting in Niger, only 7 out of 21 (33 percent) were profitable, principally for bulls to Ibadan and goats to Lagos, and both to Enugu. North-south shipments of sheep provided financial losses along all routes. Goat shipments were most profitable overall, though still incurred losses over the year on four out of twelve routes.

Over the year, there was considerable month-to-month variation. For instance, the +13 percent average profit from exporting bulls from Konni to Ibadan included losses in five out of eleven months for which data was available (64 percent). The percentage of months for which profits were positive is shown by route and animal category in table 7.3. Positive profits in every month were recorded in only five (14 percent) cases. For exports from Niger there was only one case: bulls from Maradi to Enugu. This represents five percent of the cases of Nigerien exports in 1988.

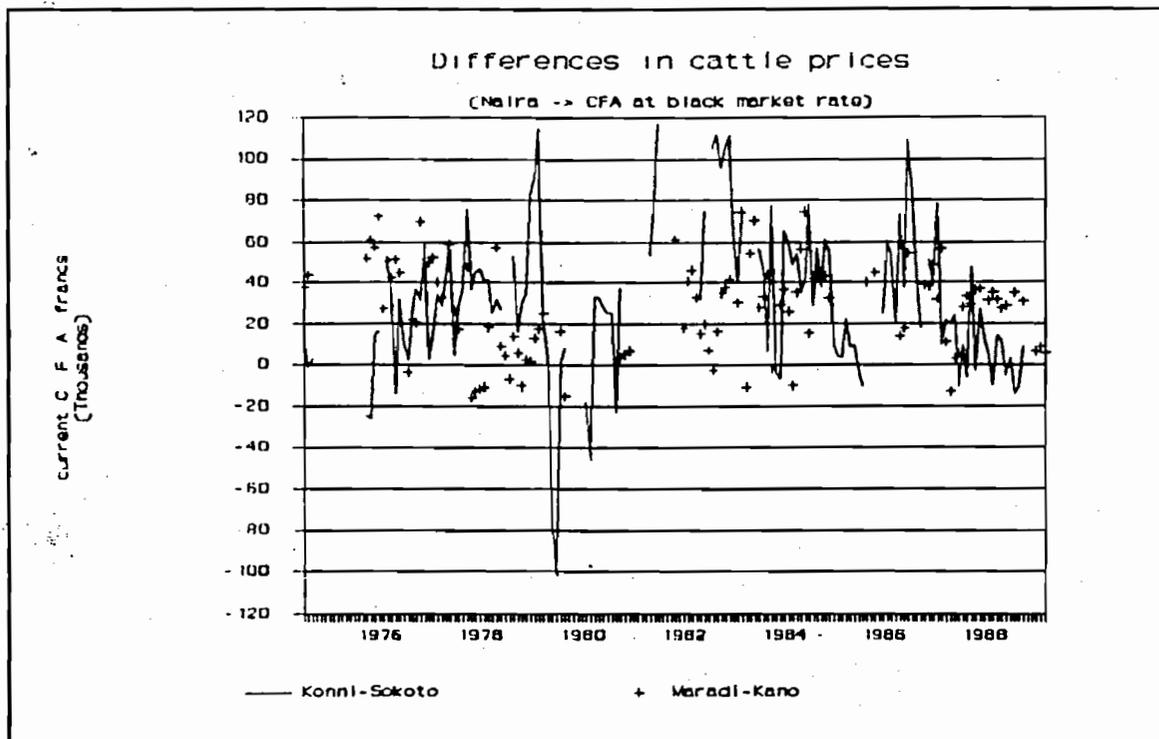
1988 was a bad year for north-south trade and particularly for Nigerien exports to Nigeria. When trade is more profitable, the level of profit can be compared with that in other activities to make comparisons and determine whether "excess profit" is being earned in livestock trade. However, when losses are so prevalent it is clear that there is no excess profit. As traders claim to have been driven away from these routes, if not from the livestock trade in general, we can only say that they are acting rationally, and that to that extent the market is efficient.

Not many of Niger's livestock exports find their way to Enugu. It is more frequented by animals from Chad than from Niger, and the volume of livestock trade down the eastern corridor is

generally much smaller than down the western corridor to Ibadan and Lagos. In the context of concern about the livestock trade throughout 1988, one wonders how many Nigerian traders were aware that cattle exports to Enugu were highly profitable. Perhaps the information was not available to them.

### 7.5.3 Price differences across the border

Graph 7.1 shows the differences in prices between two pairs of markets on either side of the border between Niger and Nigeria: Birni N'Konni and Sokoto; Maradi and Kano. The monthly information stretches from 1975 to 1988, across which the costs of doing business are not known, so no attempt is made to determine the exact variation of profit over the period. Naira are converted into CFA francs at the black market rate, and are displayed as current naira. Thus no direct comparisons can be made over time.



Graph 7.1

Source: FLD/FLPCS/MRA

Nonetheless, several observations can be made. The average price difference seems to be about 30,000 CFA from which transaction and transport costs must be subtracted to arrive at a trading profit (or loss). On average, there seems to be ample profit in the trade, with periods of loss, one of which covers much of 1987-88 for the Konni-Sokoto route. The Maradi-Kano route

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appears to have been more profitable over the last two years. These findings are consistent with the data on cross-border flows presented in section 4.1.4.

It is across the border that one would expect to find consistently higher profitability per kilometre of trade route than along any other part of the market chain. Most of the exports take place illegally. With higher risk involved, the profits ought to be higher than normal to compensate. If profits can be made exporting legally, the extra profit will exceed the direct and indirect costs of the official Nigerian export procedure.

## 7.6 Price fluctuations and the commodity market

### 7.6.1 Price fluctuations and market efficiency

In addition to the seasonal fluctuations (section 5.3), today's livestock market seems to be characterised by both extreme fluctuations (over periods of, say, days and weeks) and price anomalies sustained for months, such as the reported higher prices in the north than in the south. Both may have always existed but they have not been much discussed in the literature. The price anomalies have been discussed in section 5.1. The fluctuations are now considered in the context of market efficiency.

Livestock trade folklore has it that, in the colonial and early post-colonial periods, rail shipments of livestock from north to south were predictably evenly-spaced to avoid excessive price fluctuations. It has even been asserted that the government had quotas of cattle trains to maintain a reasonable profit level. There appears to be no evidence to back up this up. In fact, Hill (1966:9) describes the numbers of cattle arriving on southern cattle markets in the early 1960s as "extremely fluctuating".

Whatever the case may have been in the past, in today's free-wheeling market in which over 95 percent of the livestock is transported in lorries there is absolutely no co-ordination of the arrival of shipments from the north in southern markets. Official price data and traders' descriptions both paint a picture of supply-side anarchy which simultaneously offers the possibility of windfall profits and unpredictable losses. One image of market conduct is thus of untrammelled and unco-ordinated competition between many traders who descend on major consumption markets without accurate knowledge of prices to be faced on their arrival. They may have little patience to wait for a change in market conditions because their capital is tied up and, to quote a slogan often seen on the side of Nigerian lorries, "Time is money". Moreover, the cost of maintaining animals in the urban south is very high, and they may fall sick. These traders are thus often prepared to truck their animals back north again if the prices they face mean significant losses. Clearly this waste.

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would not occur if they knew that prices were going to be low at their destination.

The structurally-determined combination of flexible transport and poor communication leads to high risk. However, ceteris paribus communication would have to improve tremendously to enable the level of risk to fall appreciably. Only if the trader was privy to continuous current information as he journeyed and could negotiate with the driver to change course on the basis of this information could he begin to use to full flexibility of trucking to increase his own profits and reduce price fluctuations rather than contribute to them. If he could arrive in a matter of, say, three hours at a market which he judges to offer a higher profit than others, then he would contribute to reducing price levels in this market and this information would be conveyed to others about to make similar decisions who would then avoid the market. This would reduce, but would not eliminate, price fluctuations.

However, it is not clear that the larger traders are particularly concerned by the fluctuations in their profits. As long as the the long-run rate of return to their trading capital remains acceptable they are prepared to absorb sizable losses. Clearly, the smaller the trader's capital, the less his ability to sustain a series of losses. Moreover, at the margin, the risk of such losses acts as a barrier to entry to the advantage of existing traders.

Without reasonably accurate market information, the market must function less efficiently. It becomes more of a lottery which cannot be expected to allocate animals in an optimum fashion. Price fluctuations per se provide useful market signals when they represent real changes in underlying market conditions. If, however, they largely represent changes in limited information about supply and demand, they play a role in encouraging speculation and do not allocate animals appropriately between markets and over time. Nigerian livestock markets are partially cut off from information about others. This produces thinner local markets which would operate quite differently if they possessed up-to-date knowledge of commodity flows and prices.

In this situation there is profit to be made by traders with better market information. Nigerian traders could be in that privileged position if information were relayed to them from key Nigerian markets.

#### 7.6.2 Commodity exchange

A proposal which has recently received much discussion in the Nigerian press has been for a commodity exchange for agricultural products in which livestock futures might be sold. On this market a butcher in Lagos might be able to buy the right to the delivery of 100 cattle for Christmas slaughter in September.

Such "3-month cattle futures" could be bought and sold in the interim as market conditions changed, gradually modifying perceptions of the price which would prevail for cattle (and beef and, by extension, meat in general) in December. Thus market expectations would depend less on the number of lorry-loads of cattle to arrive in Lagos in the last 48 hours and more on the evolution of free-market prices of futures contracts (not only for Lagos delivery but also in, say, Ibadan) due to mature in the next few weeks. Such a market would tend to reduce risk, but would also depend on a much improved price communications network. It would increase livestock market efficiency. (See, for instance, Bishop (1972:26) These would certainly help open it up to those (including non-northerners) who wanted to conduct a modern business (e.g. with records of unit prices, profits and losses) by making explicit and more readily available market information which is currently not broadcast and by making available for the first time information which the traditional traders do not need.

### 7.7 Wholesale meat marketing

Despite now having the infrastructure for storage and distribution of chilled and frozen beef in place, Nigeria has no wholesale meat markets where retail butchers or supermarket managers might shop around for a choice of cuts and prices at a choice of wholesale butchers. Instead, each part of the segmented retail market has its links to its own suppliers. For marketing of domestically produced meat for the mass market, the benefits of the extra choice such a market might offer are negligible and the costs of cold storage and distribution are too high. The rest of the retail market is too small to justify such a market.

Sources of cold meat are both foreign and domestic. Trends in cold meat imports have been outlined in section 4.3. There appear to be no statistics on the volume of domestic production of cold meat, but it is unlikely to represent more than two or three percent of total Nigerian meat production.

#### 7.7.1 Nama Processing

Abattoirs producing cold meat on an industrial scale are few. In Kano, two examples were found, neither a healthy business. The first was Nama Processing<sup>28</sup>, a small private slaughterhouse set up in the mid-80s. It was set up as an outlet for meat from animals from a private ranch in an attempt to build a modern vertically-integrated meat business. It moved into buying from other sources on a weight basis. According to a livestock official, it has not been well run and is in the process of closing down. The problems were apparently due to overstaffing

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<sup>28</sup> "Nama" is the Hausa word for meat.

and the lack of a marketing strategy beyond that of selling cold meat (mostly by the carcass) at the abattoir door.

### 7.7.2 Nigerian Meat and Associated Products

The second, and undoubtedly the more important, is Nigerian Meat and Associated Products, which operates the largest abattoir in West Africa, formed under the umbrella of the parastatal Kano State Investment and Properties Ltd.<sup>29</sup> Opened in 1988, NMAP is sited at Chalawa on the southern outskirts of Kano City. (See section 7.2.1.)

After having failed to persuade the traditional Kano butchers to move to this more remote industrial abattoir, the state decided to employ younger, non-traditional butchers from the Young Butchers' Association and to try to run NMAP along modern lines. Functioning at only five percent of its capacity, it clearly does not enjoy many of its potential economies of scale. However, it ostensibly runs at a modest profit, and continues to try to build up trade.

NMAP buys animals at the abattoir by liveweight. In 1988 they were paying N 5.50 per liveweight kilogramme of cattle. This year the price was N 8.50, though it was though possible that the price might soon drop, following what had been perceived as six preceding months of market stability. The Procurement Officer also organises purchases on local markets when orders require it.

Future plans do not appear to include retailing cold meat. On the wholesale level, NMAP already supplies supermarkets and hotels in the north and the south of the country. Cuts are prepared to meet the buyer's needs and those smaller than quarters are wrapped in cellophane. Although many buyers prefer to organise their own transport, NMAP has the capacity to deliver chilled or frozen meat in its own refrigerated and insulated trailers. The company also sells hot meat through its own retail outlets. (See section 7.3.2.)

NMAP processes some livestock by-products, and sells all parts of the animal, processed or not. The blood, manure and horns all contribute to abattoir revenue, in addition to the viscera, the skin or hide, the head and the feet.

### 7.7.3 Conduct and performance

In comparison to the livestock market there is almost certainly a greater degree of market concentration in the wholesale cold meat market. The barriers to entry are very much greater due to the

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<sup>29</sup> KSIP also has factories producing cotton textiles and vegetable oils.

capital equipment and expertise required. Due to the substitutability of all forms of meat, and the dominance of the "hot meat" trade, economic rent can only exist if the cost of production of "cold meat" is lower than that of "hot meat". This is unlikely to be the case: the cold meat market exists to exploit a particular market niche, not because it is a low cost form of meat.

#### 7.8 Retail meat marketing

There are four retail marketing channels for meat. The first two are hot meat outlets; the second two are for cold meat.

##### 7.8.1 Traditional butchers' stalls

The first, and by far the largest, outlet is the traditional butcher who performs the same functions as his Nigerien counterpart. Carcasses or portions of carcasses from the abattoir are bought from the wholesale butcher. The hot meat may be sold raw in small piles containing a mix of flesh, bone and fat. Offal is sold separately in the same way. Haggling is generally over how much of this mixture is to be sold at a given price, rather than the price itself. Scales may be used but this is neither necessary nor common. Alternatively, it may be cooked and sold as fast food. In rural areas, and in all areas without electricity, this is the exclusive retail meat channel.

In both cases the capital involved is minimal. For raw meat a table-cum-chopping block and a cleaver are the essentials. In the case of cooked meat a barbeque grill is set over hot embers or a set of skewers is placed vertically into the earth lip of a circular mound a crater in the middle of which is filled with hot embers. All meat bought is sold on the day of purchase: there is no overnight storage.

These traditional outlets are run by traditional butchers. Retail butchers share a common social background and compete with each other within this framework. This does not lead to innovative development.

##### 7.8.2 Municipal meat kiosks

The second type of retail outlet may be unique to Kano City. Claiming to have learned from Nama Processing's marketing mistakes, NMAP is in the process of opening twenty-two retail kiosks in Kano City, selling meat slaughtered at the new abattoir. Executives claimed that their cost at the abattoir for a kilogramme of "stewing beef" (comparable to the traditional retail butcher's meat, but without bone) was 19 naira. The traditional butcher's price was, they said, 22 naira while the same mix at a local supermarket cost 27 naira. They believed that, taking account of other retail costs, this would allow their basic retail product to be competitive. This is by far the most

adventurous foray by the state into the Nigerian mass market for hot meat, and may be meant to admonish the butchers for their refusal to move their activities to the new abattoir.

### 7.3.1 Meat shops

Nigeria's middle class, swelled in numbers over the oil boom decade, has begun shopping in "meat shops". These form the third type of retail outlet. They are small, owner-run shops on the cutting edge of private enterprise in the meat trade. They deal mostly in chilled "cold meat", sold in crude cuts at a fixed price per kilogramme and stored in freezers. Middle class consumers consider them more hygienic than traditional butchers' stalls. The range of stock may be extensive: beef, mutton, goat meat, pork, chicken and (interestingly) three varieties of fish were found in four large freezers in one well-stocked Kaduna meat shop.

Meat shops are of three varieties. The main type, described above, is the privately-owned shop, stocked with freezers and scales. The second is the rented shop or stall in a public market, similarly stocked. Both are profit-making small enterprises. The third type is the government-subsidised meat shop, which is not widespread. In Kaduna, such a shop was initially set up as a perk for civil servants but its benefits could not be denied to outsiders. It continuously loses money and is destined to be closed, as part of government strategy to leave retailing to the private sector.

Meat shops are flexible in their sources. The owner of the meat shop in Kaduna mentioned above owned six meat shops in three northern cities. With a turnover on a scale where he was beginning to enjoy economies of scale, he took advantage of contacts and cheap prices over a wide area. His pork came from Jos, his beef from Kano, his Argentinian fish from the south, his chicken from local sources and his small ruminant meat from his own herds. The pigs and ruminants were slaughtered and the hot meat transported immediately over distances up to 440 kilometres in non-refrigerated vans to his different outlets. There they were frozen.

Meat shops probably account for no more than five percent of retail meat sales, though there are no statistics on this. In the south, much of this meat is probably imported. However, five years ago almost no meat shops existed: they have grown phenomenally from a very low base. Moreover, five percent of Nigerian meat sales is still a huge market. Meat shop growth has been slowed down by the current economic squeeze, but should continue when the economy picks up again.

The problem with meat shops as a prospective market is that they tend to be small operations. The Kaduna shop mentioned appears

to be among the largest operating there, yet the owner calculated that his six shops only sell the equivalent of two cattle daily. Individual operators do not yet appear to have a trade association or other organised means through which livestock or meat could be sold to them in bulk.

#### 7.8.4 Supermarkets

The expatriate population, now a fairly small proportion of consumers in most Nigerian cities, and the westernised elites have for several decades shopped for selected cuts of meat in supermarket chains, such as Kingsway, Leventi's and Chelleram's. The number of these chains is limited, but each has a sizable throughput and can make large bulk purchases of quality meat.

#### 7.8.5 Product differentiation and market opportunities

In 1979, an American study stated: "Beef prices in the elite market are several times higher than in the general market." (CRED 1979:22) However, today there is not a great difference in meat prices between the three types of retail outlet. In Kano in July 1989, a kilogramme of stewing beef, the mix of different parts of the animal, was selling at 22 naira at the traditional butcher's stall and 27 naira in the supermarket. The corresponding prices for Kaduna earlier in the year had been 15 and 20 naira. In Kano in July 1989, a kilogramme of prime beef was selling at 25 naira at the traditional butcher's and 31 naira in the supermarket.<sup>30</sup>

The convenience of a choice of animal protein in meat stores and of one-stop shopping for many items in supermarkets is clearly valued by middle and upper class Nigerians for whom "Time is money". So is improved hygiene. However, they are still very price conscious. Especially during the current period of slow economic growth, competition based on price appears set to continue to limit market shares in the retail meat market. Nonetheless, the urban cold meat market probably has a throughput almost as large as the total Nigerian market, and will grow.

The Nigerian ability to sell profitably to this market is explored in section 10.1.3.

#### 7.9 Penetration of fish and chicken

Away from the coast and the major rivers, Nigerian fish consumption used to be low. However, the affluence of the petrol boom has led to cold chains ramifying from the major ports. The net

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<sup>30</sup> Conversations with: Dr. M. A. Faruki, Senior Technical Controller, FLPCS (2.viii.89) and Mr. Mustapha M. Aliyu, accountant, NMAP (3.viii.89).

result is that in Sokoto or in Maiduguri, each over 800 kilometres from the coast, frozen fish is always available.

Fish reaching the end of the cold chain in northern Nigeria may even be taken to towns without commercial cooling facilities, there to be sold to individuals who eat it or store it in their fridges, or to be smoked for future sale. Thus even in small villages remote from major bodies of water, fish can play a rôle in the diet and compete with meat.

In conjunction with the widespread availability of poultry and eggs, the penetration of fish as an alternative protein source into all rural areas means that substitution away from red meat has become easier and that preferences are freer to change. The Nigerian ruminant meat market is now connected not only to the world meat market, but also to the world fish market and to the price of chicken feed, itself dependent on the price of fertiliser.

## GOVERNMENT POLICY AND REGULATION

### 8.1 Government structure

On a national level, livestock affairs come under the Federal Livestock and Pest Control Service (FLPCS), an arm of the Federal Ministry of Agriculture and Natural Resources (FMANR), based in Abuja. FLPCS is responsible for nationwide livestock policy, technical assistance, vaccine production and projects.

Each state runs its day-to-day livestock services through its own livestock service within its own agriculture ministry. The livestock service has central offices in the ministry, "zonal" field offices in the capital of each Local Government Area (LGA) and other veterinary control posts where appropriate (for instance, along the frontier with Niger and along main trade cattle trucking routes).<sup>21</sup>

Policy co-ordination between the federal and state levels takes place through the Council of Agriculture chaired by the Federal Minister of Agriculture and Natural Resources and on which sit all the state Commissioners for Agriculture.

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<sup>21</sup> Within the last year, the Nigerian civil service has been restructured in an attempt to reduce the number of levels of government. This has happened at both the federal and state levels. At the federal level, the Federal Livestock Department (policy development and statistics), the Nigerian Livestock Projects Department (national projects), and the Pest Control Department were merged to form the FLPCD. At the state level, the reorganisation appears to vary by state. Sokoto seems to have followed the federal model: the Veterinary Department and the Animal Production Department have been merged into the Department of Livestock Services which has four "divisions" responsible for animal health, animal husbandry, hides and skins, and range management. In Kano, the former Ministry of Agriculture has been split into two parts, one of which is the Ministry of Animal Health and Forestry, within which are a Veterinary Department and a Department of Livestock Services. In Kaduna, the former structure seems to have endured: there is a Ministry of Agriculture within which there is a Veterinary Department and an Animal Production Department.

## 8.2. Government policy

In 1988, as a part of SAP, FMANR published a major policy document: Agricultural Policy for Nigeria, in which livestock policy is seen as one part of a coherent plan for agricultural development. It defines national policy in livestock production, agricultural produce marketing, and in the interlinked areas of pricing, trade and the exchange rate.

### 3.2.1 Livestock production

In the livestock sector several goals are pertinent to livestock marketing. Livestock production is to be increased, by both increased numbers of animals and greater productivity, the ultimate goal being self-sufficiency in livestock products, principally to improve Nigerians' nutrition. Tsetse-fly eradication will help open up more land for grazing, while breeding, nutrition and animal health programmes will allow for greater animal productivity. Government targets include self-sufficiency in poultry eggs in four years (i.e. 1992), and in meat from sheep, goats and poultry in five years (i.e. 1993). Undefined longer periods are to be allowed for self-sufficiency in other meats, including beef. (FMANR 1988:23-24) However, the FLPCS Director has described these target periods as unrealistic.

The document notes that there has been a "shift of policy emphasis from input subsidy to incentive-product-pricing", and that in this context, the "government will encourage investment in marketing and distribution infrastructure". It does not, however, commit the government itself to make such investment. As part of encouraging more intensive livestock production, the government will assist those who are developing domestic inputs, such as fodder, water, drugs, vaccines and veterinary services. The emphasis is on helping private entrepreneurs to provide these inputs, whenever possible. Government subsidies are eventually to be phased out. In the interim, however, subsidies will be available for a wide range of inputs. (FMANR 1988:26,27)

Suggesting that meat imports did not exist in 1988, the document asserts:

"To serve as an incentive for increased production, [the] government's ban on the importation of beef and other meats will remain in force." (FMANR 1988:26)

It is not, in fact, clear that the ban was being strictly observed even as this policy was being formulated. Import statistics belie claims that over various periods in the 1980s meat imports had been eliminated. It may be more reasonable to interpret this as the statement of intent to keep import levels low.

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### 3.2.2 Marketing of agricultural produce

FMANR's marketing goals are, as one might expect, to promote a distribution of agricultural produce which is efficient in evening out price variations in space and time without unreasonable marketing margins to those who perform this service; and to encourage agricultural exports. Marketing co-operatives and commodity exchange markets will be encouraged, as will marketing research and dissemination of market information. In all this the "[g]overnment will closely monitor and regulate all agricultural marketing activities, particularly the marketing operations of all market associations to minimise the unwholesome activities of some of them". (FMANR 1988:44-45)

As noted in section 7.8.3, the government is getting out of its meat shop business, leaving this to the private sector.

### 8.3 Government regulation

The Nigerian government does not heavily regulate the livestock or meat trades. Nor is this likely to change in the near future. Federal Government contributions to the Nigerian livestock and meat market have been its lack of regulation and its fuel subsidies.

#### 8.3.1 Health regulations

State-level staff are responsible for checking animal health certification at border points, in major markets and abattoirs, and along the trucking routes. These health regulations are not greatly evaded because they are fairly well enforced and very cheaply complied with. The demise of trekking of animals greatly lowers the risk of infection of local livestock by trade animals. Risks from anthrax, foot-and-mouth disease, and tick-borne diseases are much reduced.

The 1964 A guide to veterinary law in Northern Nigeria, still available and apparently still valid, contains details of trade cattle health legislation. However, discussing the "Control of trade cattle regulations" section, the author comments, "Many of their provisions are overlooked or in abeyance nowadays, which is extremely unfortunate.". There has been no reverse in this trend.

Revenue collection was almost as important as disease control, judging by the inclusion in the guide of "The slaughter stock (control and taxation) law" which governs tax collection along stock routes and trucking routes and "is not strictly speaking a

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veterinary law... but... administered by veterinary staff".  
(Northern Nigeria 1964a:passim)<sup>22</sup>

Abattoir meat inspection has been the responsibility of FLPCS and its predecessors since 1968. (Aloba 1988:12)

### B.3.2 Bans on trade in horses and donkeys for slaughter

The governments of the Islamic northern states in which donkeys are bred as beasts of burden, and through which Nigerien exports must pass to serve this market, have all issued official bans on trade in donkeys destined for slaughter. However, proof of being "destined for slaughter" is difficult. In practice, the Ibo who dominate this trade are not stopped from buying up donkeys and trucking them in small quantities. Sometimes they smuggle them on the hoof over the state border in non-Muslim areas, as from southern Kano to northern Bauchi. Once having left the north, they may slaughter the donkeys and smoke the meat, selling it as smoked beef in the southeast. This has apparently been happening only since about 1980.

Or sometimes the animals themselves are trucked south along the main road, the traders using bribes where necessary, though this is not always possible because feelings about this trade often run high. The animals are then slaughtered at their destination. This has been happening for the last five years.

### B.3.3 Local market regulation

At the local government level, the livestock trade is regulated in the market place, by LGA employees, not livestock agents. Trucks entering the market lorry park are subject to a fee. This was a modest N2.00 at Acida market near Sokoto Town. At Acida there was an animal sales tax (N1.00 per large and 50k per small ruminant), but no tax was levied on the presentation of animals for sale. The local government further demands annual fees of N20.00 from traders based in the LGA. No distinction was made between a Nigerian and a Nigerien in these respects.

After unsuccessful attempts by the Livestock and Meat Authority in the late 60s and early 70s to introduce sales on the basis of liveweight and quality grades (section 7.1.3), the livestock service now contents itself with collecting information on prices per head, by the sex and size of the animal.

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<sup>22</sup> For detailed discussions of the animal health aspects of trekking animals see Ferguson (1966:85-86) and Mittendorf and Wilson (1961:43-50)

## REPATRIATION OF FOREIGN EXCHANGE

Nigerien livestock exporters are paid in Nigeria in naira which they eventually want to change into CFA. There are various ways to do this. The choice depends on whether the exports are performed legally or illegally and on whether the exporter of livestock is also an importer of other goods.

### 9.1 Formal exporters

Until 1986, the procedure had been relatively easy. The Nigerien Ministry of Finance had a bank account in Kano into which legal exporters could deposit the Naira proceeds of their sales, the equivalent of which could be collected in Niger in CFA francs. They received the more favourable official exchange rate. This was a carrot to do business through official channels. However, the Ministry of Finance had difficulties with this account after SAP began and have since closed it. Since then exporters have had no direct Nigerien government help and must use the more cumbersome international procedures set up by ECOWAS.

West African countries' central banks co-ordinate through ECOWAS to settle foreign exchange debts incurred between member states. In the early days, each debt had to be paid, so that two sums travelled in opposite directions between the central banks. Now there is a clearing house in Freetown, Sierra Leone, which calculates the difference over a period of months in the debts which any two countries owe each other. Then only the difference is paid by the country which is the net debtor, reducing the size of international flows.

When a Nigerien wants to export livestock to Nigeria through official channels and to realise the profit in CFA francs in Niger, he takes the following steps. Firstly, he contacts the prospective Nigerian buyer and asks him to organise via his bank permission from the Central Bank of Nigeria for the payment of the foreign exchange to the amount necessary to pay for the livestock shipment. Once this has been done, the Nigerian buyer requests a letter of credit from the Nigerian bank on behalf of his client which guarantees that, once certain delivery conditions have been met, that the bank will transfer payment for the shipment to the Nigerien bank where the exporter will receive it. If the letter of credit is "irrevocable" the payment can be quickly made. If not, the exporter can count on being paid, but must wait until the Nigerien bank has heard through the official circuit that the Central Bank of Nigeria has honoured the payment.

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The delay can be considerable because the official circuit is long. Starting at the client's commercial bank in Nigeria, it stretches through the Central Bank of Nigeria in Lagos to the West African Clearing House in Freetown, the head office of the Banque Centrale des Etats de l'Afrique de l'Ouest (BCEAO) in Dakar, the Niamey office of the BCEAO, and eventually the Nigerien commercial bank at which the CFA franc payment is to be made. This loop can tie up an exporter's trading capital for up to six months. Given the relatively small extra fee for irrevocability (around 1.25 percent), exporters appear well advised to pay the premium for the extra speed.

The conversion to CFA francs from Naira is made at the more rewarding official rate, to which the exporter who uses the parallel route does not have access. However, one has to be well-organized, to be able to deal with paperwork, and to sacrifice a certain flexibility to be able to benefit from the official circuit. Small-time operators who live in one of the many Nigerien towns and villages without banks, and who seize opportunities from mercurial price differences, who cannot read or write, do not keep formal accounts, and may not even pay the patente, are not able to take advantage of this system.

SONERAN, the Nigerien parastatal which is the subject of much of chapter 10, has recently begun again to export significant quantities of livestock and meat to Nigeria after an export slump of several years. It found Nigerian companies constrained to offer payment in Naira. The Central Bank of Nigeria would not give the importers' banks the permission to issue irrevocable letters of credit which would entitle SONERAN to foreign exchange.

SONERAN's export business therefore tends to accumulate Naira in a Nigerian bank account. To limit this accumulation it sells Naira to Nigerien companies doing business in Nigeria -- NIGELEC (which buys electricity from the Nigerian Electric Power Authority) and Total (which supplies petroleum products to the parastatal, SONIDEP). These exchanges are made at the official rate. This system has only recently begun and needs to be improved. As it stands, the other companies' needs for Naira do not mesh perfectly with SONERAN's needs for CFA, so considerable working capital is still tied up in Naira. Thus SONERAN's profitability is constrained by problems of repatriation of foreign exchange.

Solutions SONERAN has proposed to improve the situation are: to require the co-operating companies to provide it with their proposed annual Naira expenditure plans and to increase the number of companies to which it sells Naira.

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## 9.2 Informal exporters

Those who export animals to Nigeria without meeting Nigerian legal requirements may sell the animals and buy other items such as soap or cement to import into Niger. Their motivation to do this depends on relative costs of goods in Niger and Nigeria, the black market exchange rate, and the contacts they have for marketing the imported goods on their return to Niger.

Those who specialise in the livestock trade to the exclusion of other commodities, must change their naira on the black market and return to Niger to build another export herd. When animals cost more in Niger than in Nigeria, converting naira to CFA francs at the black market rate, then these exporters cease exporting. It has been suggested that under these circumstances traders who also import Nigerian goods will continue to export livestock, looking only at the net profit on the whole import-export cycle, of which the livestock part may be negative but the whole may be positive. This would seem to make very little business sense. Instead of taking a loss on the effort taken to assemble, export and sell a herd of livestock, he can convert his CFA francs directly into naira and go down to Nigeria to buy any goods he feels he can sell at a profit in Niger. The only trader who will sell animals at a loss in Nigeria is one who thought he could make a profit but was wrong.

NIGER'S EXPORTERS10.1 SONERAN

## 10.1.1 Commercial history

La Société Nigérienne d'Exploitation des Ressources Animales was established as a parastatal company in 1968 to fatten livestock at Ekrafane Ranch near Abala, in Filingué Arrondissement, slaughter the animals at the Niamey abattoir, and to export the meat. After buying cattle on local markets and on other selected markets across the country, SONERAN fattens them typically for five to six months. Small ruminants are also bought and fattened. This activity still takes place, but SONERAN also exports live animals. The principal market for livestock and meat is Nigeria. It also sells meat wholesale within Niger, including to public institutions such as Niamey's hospital and university.

Once part of the livestock service, it has recently been under the aegis of the Ministère de la Tutelle, like other parastatals. Its staff is seconded from the MRA.

For much of the early 1980s, SONERAN had a single Nigerian meat customer: the Nigerian Food Company. After disputes, principally over a shipment of meat which was condemned in Nigeria as unfit for human consumption, this link was severed. Thereafter little or no export activity took place, due initially to the Nigerien government ban on the export of livestock, and later to the continuous fall in the value of the Naira.

SONERAN's export activity has recently grown again. Recent export figures appear to show a huge increase in turnover. SONERAN staff quote exports from October 1988 to August 1989 of 73,000 rams, 46,800 cattle and 1000 tonnes of fresh meat to Nigeria. The entirety of other exports was 745 much-publicised rams to Senegal for Tabaské, another 520 rams to Benin, and 300 goats to Benin.

The above figures have not yet been formally published. Moreover, they have provoked disbelief among some livestock experts in Niger. One MRA official asserts that many of the cattle slaughtered in Niamey in 1988 were imported from Nigeria. In this context, he finds it difficult to believe that SONERAN exported almost 50,000 head to Nigeria over the period in question. If this figure were correct it would represent almost one third of the 163,000 Nigerien cattle estimated to have been exported to Nigeria in 1988. (See section 4.1.4.) However, it

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does seem to be accepted that SONERAN's livestock exports to Nigeria have increased.

Though SONERAN staff said nothing explicit about the profitability of their exports, other sources suggest that most exports to Nigeria lose money.<sup>33</sup> This hypothesis is consistent with the company's lack of a working telephone for most of the second half of 1989 and the fact that its staff have suffered delays of several months in their salaries.<sup>34</sup> If its export business loses money, the question which may be raised is: why has SONERAN recently done so much of it?

As in the early 1980s, SONERAN currently finds itself in the weak position of doing business with only one company in Nigeria. The company in question is Danu (Nigeria) Ltd., based in Port Harcourt. However, it has taken the first steps towards setting up an office in Lagos (an application to the Nigerian-Niger Joint Commission for Co-operation). This will increase the chances of diversifying its clientele.

Not all SONERAN's efforts go to profit maximisation. It has an obligation as a parastatal to act to maximise Niger's benefit in both its domestic and international activities.

Domestically, for instance, SONERAN participated in the dried meat programme which the government promoted during the 1984-85 drought. However, it has not since been involved in this line of business, presumably because it is not very profitable. It also went through a phase of supplying meat wholesale to butchers in kiosks which it owned in Niamey, as part of a government-inspired plan to encourage butchers to sell at fixed prices. The quid pro quo for its public service is its secure domestic meat markets in the public institutions mentioned above.

Pressure is put on SONERAN to use Nigerien lorries to transport meat and livestock, whether domestically or internationally. (See section 10.1.2.) It is also expected to maximise meat, rather than livestock, exports, so increasing the value-added to Niger in the livestock trade. However, this is a policy which has to be balanced against the need for business and, in fact, the clientele's demand largely determines the mix of meat and livestock supplied.

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<sup>33</sup> In contrast, the exports to Senegal and Benin are probably profitable, according to an MRA source.

<sup>34</sup> However, these deficiencies may also be explained by cash flow difficulties due to working capital being tied up in Nigerian banks, as explained in section 9.1.

The great majority of SONERAN's clientele who want meat prefer to buy it by the carcasse, though SONERAN is willing to quote a price for any combination of cuts. In the past, customers have bought intestines (which must be treated differently because they decompose much more quickly than meat). The parts of the carcasse not exported are sold locally or given away. There is a ready local market for many of these by-products which are grouped for sale as follows: skin/hide; intestines, heart, liver, head, feet; tail; kidneys. The blood given to individuals who collect it for use as a component in chicken feed or as fertiliser. The bones and horns are discarded.

#### 10.1.2 Transport

SONERAN does not own its own lorries and is theoretically free to choose the trucking service with the lowest prices. In practice, Niger's Syndicat des Transporteurs puts pressure on the Nigerian government to make SONERAN use their services which cost significantly more than the Nigerian alternatives.

In Nigeria, a trader may hire a 30-tonne lorry between Sokoto and Lagos for around 3,000 naira, a cost of around 2.9 naira per kilometre. When SONERAN hires an identical Nigerian lorry to take animals to Lagos or Kano from Abala, the cost is 5.2 naira per kilometre. The reasons are threefold. Firstly, the cost of fuel in Niger is greater (though many Nigerian truckers can carry enough Nigerian fuel for journeys within Niger). Secondly, Nigerians are wary of doing business in Niger: they see Nigerian officials as overly keen to enforce laws which with which they are not familiar. Thirdly, it may be difficult to find a load to carry in the other direction. These prices are, however, dwarfed by what members of the Syndicat des Transporteurs Nigériens charge: 600,000 CFA from Niamey to Lagos; 475,000 from Niamey to Kano. Converted into naira at the official exchange rate this is equal to 10.8 naira per kilometre.<sup>29</sup> Thus the rate per kilometre doubles from Nigerian transport within Nigeria to Nigerian transport-venturing into Niger, and doubles again from international transport furnished by Nigerians to that supplied by Nigeriens. It may therefore come as no surprise that SONERAN finds it cheaper to trek animals to the border than use trucking within Niger.

SONERAN restricts itself to SNTN when renting refrigerated trucks for its meat. It currently pays 100,000 CFA francs per tonne to Lagos, thus around 2,000,000 CFA francs per 30 tonne truck which about 20 tonnes of meat can be loaded. The cost of renting Nigerian refrigerated lorries is not known.

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<sup>29</sup> Conversions are made at the official rate because SONERAN does all its business formally.

SONERAN sent its Tabaské sheep to Dakar by airfreight. Air Afrique charges for airfreight by the palette, each of which carries 25 sheep or five cattle. The cost is 575,000 CFA francs. It is not clear how much meat could be loaded onto a palette.

#### 10.1.3 Profitability of trucking meat to Nigeria

Would SONERAN have been able to make a profit selling in Kano in July 1989? Appendix 3 is a mid-1989 SONERAN worksheet showing profits under various conditions of purchase and sales prices for cattle. Purchasing cattle at 260 CFA francs per kilogramme liveweight leads to a cost per kilogramme of beef leaving Niamey by lorry of 675 CFA. For a purchase price of 300 CFA per kilogramme, the corresponding figure is 768 CFA per kilogramme. These figures take account of processing costs and customs taxes but assume no profit. The sales cost necessary to provide various levels of profit are then given.

In July 1989, NMAP's selling price for cattle carcasses was 15.75 naira/kg. This was part of a price structure which, it was claimed, was making the company a modest profit. This is the price with which Niamey cattle carcasses must compete. Converting this price into CFA francs at the official rate (45 CFA/N), we arrive at a Kano cattle carcass price of 709 CFA francs/kg. From this has to be subtracted the transport cost of approximately 100/CFA francs/kg, leaving a Niamey cattle carcass price of 609 CFA francs/kg, which is 11 percent less than the break-even price even under the more optimistic, lower purchase price.

This disappointing result is not necessarily true of all destinations in Nigeria. Unfortunately no other data was available which allows the calculation to be replicated for other cities.

#### 10.1.4 Abattoirs

Meat exports currently take place exclusively from the Niamey abattoir which is far from reaching capacity usage. Bottlenecks in cold storage capacity would only arise if exports were to exceed twenty tonnes of meat (one lorryload) daily. This represents 7,300 tonnes annually against the 1000 tonnes reported for ten months of the 1988-89 financial year.

Modern abattoirs have recently been built at Tahoua, Maradi and Zinder, each surrounded by plentiful supplies of livestock destined for Nigeria. All are equipped with modest cold stores which may be too small to provide the standard load for a 30-tonne refrigerated lorry. None of the abattoirs is being used to capacity, and none of the cold stores has been used at all. If profitable markets can be found, these regional abattoirs should be able to export meat to the limits of their capacity. So far, SONERAN's attempts to generate meat markets in Nigeria from Maradi have failed because Nigerian meat prices were not

competitive, but the swing to profitability may well take place in the next year.

To shave costs on the Maradi-Katsina route -- a distance of only about 100 kilometres -- it is quite realistic to suppose that the carcasses from an early morning slaughter in Maradi could be transported unrefrigerated to Katsina for sale an hour or two later. Abattoir sources suggest that there are no international public health regulations which would prohibit unrefrigerated cross-border trade. However, they add that, given the unpredictability of the delay at the border, it would not be commercially prudent to pursue such a scheme: the risk of losses from putrefaction would be too great. It would seem that this risk could be reduced if the regional (or national) governments on both sides could arrange thorough but quick inspections at the border.

#### 10.1.5 Privatisation

Pressure has been put on the Nigerien government by foreign donors to privatise SONERAN. The government appears not to be keen to do so: the matter has been "under study" for some time at the Ministère de la Tutelle. Experience with the privatisation of two other livestock sector parastatals in the recent past may explain its reluctance. The Société Nigérienne de Collecte des Cuirs et Peaux (SNCP) and the Société Nigérienne de Tannerie (SONITAN) have gone into decline since privatisation which some assert to have been too hastily done with insufficient planning, involving shareholders who were not greatly committed to the project. If SONERAN is eventually privatised, it is to be hoped that it does not suffer the same fate.

Partial privatisation has been mooted. Private stockholders would buy into only a part of the capital. There is Canadian interest in this and some on the part of Nigeriens, but not from butchers or livestock traders.

#### 10.2 Private sector

As in Nigeria, traditional butchers/traders dominate Niger's livestock and meat trade outside the public sector. In the export market, the operators are uniquely interested in livestock to the exclusion of meat.

No one expects that the butchers' interests will easily extend to cold meat exports without major efforts at persuasion. The gap between the know-how and contacts in the livestock and cold meat trades is very great, despite the strong linkages between the commodities involved; and the butchers' affinity to tradition is strong. If Niger wants to encourage more actors in the meat export trade, it would seem easier to try to interest modern private sector operators than to try to convert traditional actors to a new trade.

CONCLUSIONS11.1 The need to encourage Nigerien livestock exports to Nigeria

Some Nigerien government officials are fond of talking of providing enough meat for domestic consumption at reasonable prices. Their concern that the population should be well nourished is commendable. However, it is impractical to imagine that the next generation of Nigeriens will eat as much meat per person as the current one.

The Nigerien population keeps on growing and will reach 10 million by the year 2000. (World Bank 1989:214). Niger's long-run supply of livestock is not increasing and will not increase until production systems are fundamentally changed. Intensification of production may not be possible without irreparably degrading the range, and seems improbable without fundamental land reform. The combination of increasing demand for meat and constant livestock production spells lower per capita consumption.

Moreover, Nigerian demand will not diminish. Higher prices offered by Nigerian consumers will continue to attract most of Niger's cattle and many of its small ruminants and camels across the border. There is little practical that either government can do to stop this. Any effective scheme to control the border would cost much more than any putative benefits it would bring.

Most importantly, it is not in Niger's best interests to interfere with that flow. It is true that, if exports were to be curtailed, prices would be lower on the Nigerien market and Nigerien consumers would eat more meat. However, the cost to be paid for this would be lower prices to the Nigerien livestock producer. This would mean that the traditional herder would have to sell more animals to make ends meet, and that the commercial investor (through whose investments in more intensive livestock production Niger might hope to increase overall livestock production) will tend to turn away from livestock raising and look elsewhere for more lucrative investments.

Niger's livestock may be seen as a mobile cash crop which produces a luxury consumption good. Unfortunately, Niger is a poor country and if it consumes too much of this good itself, it will not be able to earn the foreign exchange it needs to buy cheaper forms of protein and calories on which most of its citizens subsist. The government should not therefore be pursuing policies which reduce its price, but rather allow the market to

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allocate this valuable commodity to those who will pay most for it, in order to maximise the return to Nigerian producers.

Niger should encourage livestock exports, aim for sustainable increases in its own livestock production, and try to reduce its human population growth rate.

### 11.2 Meat demand in Nigeria

Niger is an important but a marginal supplier of livestock and meat to the Nigerian market. When Nigerian demand for livestock dropped with the introduction of SAP, it was consumption of Nigerian supply which dropped. Conversely, as the Nigerian economy continues to grow so will the demand for Nigerian animals.

If real GDP continues to rise at 3.5 percent per annum (as it did between 1984 and 1988), and if we accept the figure of 1.3 as a good estimate of the income elasticity of demand (section 2.3) then, all things being equal, we should expect an annual rise in the demand for meat of 4.5 percent. This implies a doubling time of approximately 15 years. Now that the Naira appears to have reached an equilibrium level, any increased demand should be communicated to the outside world.

However, Nigerian demand for meat depends on more than just income, as discussed in chapter two and section 4.2. It also depends on government macroeconomic and trade policy, relative prices of substitutes, widening animal protein tastes, and cold chain developments.

The Nigerian government is already greatly helping the Nigerian livestock industry by limiting imports of meat from the world market which cost much less than Nigerian meat. Many other coastal countries do not follow this policy. Any increase in the volumes of frozen meat shipped into Nigeria would harm the profits of Niger's exporters. Unfortunately, this benefit is just a side-effect of Nigerian government policy to help its own producers. If this policy changes, Niger will probably be powerless to stop it.

Future trends in the price of fish, to which meat prices are closely linked, are beyond the scope of this study. They depend on the futures of: the fishing fleet, fish farming and traditional fishing; the levels of fish imports; and the penetration of cold chains capable of offering the choice of frozen fish to consumers. Poultry and egg prices depend greatly on fertiliser prices which are another unknown.

The Nigerian market will expand as the period of structural adjustment comes to an end and will be able to import all the livestock and meat which Niger can export to it. The only question is: at what price?

### 11.3 Exports of livestock or meat?

Niger's problem is not one of finding a market for its animals and meat, but rather finding a formula which maximises the long-term profit from their export. Better market information may enable Nigerien traders to direct their animals, if not to the highest profits, at least to higher average profits than they would find without it. It is clear that southern markets are not always where the highest prices are. Without hoping to be able to record daily price fluctuations, it should be possible to determine the rough spatial price structure over weeks and months, and disseminate this information quickly to Nigerien traders. This is a relatively cheap option and it may be a service that the Nigerian government will eventually provide, especially if commodity markets begin to operate.

Meat marketing has the potential to offer more profit and employment in Niger than livestock marketing. As the Nigerian economy improves, there will be opportunities to make profitable use of existing modern abattoir and cold store investments. The possibility of tapping into the flow of refrigerated lorries going south from northern Nigeria could make Nigerien meat more competitive on southern markets in a market which is likely to become more competitive. As long as no significant new infrastructural investments are required, it is difficult to see how Niger could not establish a profitable niche in the Nigerian meat market.

However, there will be fluctuations in demand which will inevitably lead to periods of less than full capacity usage of abattoirs etc. This is not important if these are pre-existing facilities, which would have existed in any case. However, if we consider new investments are to be made to gain greater market share, the risk of losses from low capacity usage may make them seem economically and financially unattractive. In this sense, meat exports should be seen, on one hand, as a "development" option, adding value-added to raw materials within the country, and providing employment and expertise and, on the other, as a significantly riskier proposition than livestock marketing (for which almost no capital investment is required).

### 11.4 SONERAN

The Nigerien government should be concerned about SONERAN's Nigerian marketing strategy. Livestock exports to Nigeria appear to be the major source of its woes. Two specific points need to be addressed. The first is the money it seems to be losing on the exports. The second is the foreign exchange constraint which ties up its working capital and which would continue to do so even if SONERAN could turn a profit on its Nigerian operations.

In the long run, there should be profit to be made from the Nigerian market. In the short run, the trading climate is not favourable.

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## RECOMMENDATIONS

### 12.1 Meat marketing

SONERAN should not be allowed to continue to operate in its present state. Changes should be made to eliminate the loss-making parts of its business, perhaps by suspending its Nigerian operations until the possibility of profits seems surer.

In the interim, SONERAN's proposed Lagos office should be set up and manned by a trained commercial attache with a good command of English.

SONERAN and Niger would benefit if private investors were to invest in or set up in competition to SONERAN. Efforts should be made to design a package which would attract private sector participation in meat exports to Nigeria.

Meat exports from Tahoua, Maradi and Zinder abattoirs hold potential and should be actively developed when the commercial climate improves. Some thought should be given to expanding their cold storage capacity which could in each case provide bottlenecks to efficient marketing.

It would seem that unrefrigerated meat from Maradi and Birni N'Konni would be more competitive on Katsina and Sokoto markets (respectively) than meat shipped in refrigerated lorries. The risk of delays of the border which would compromise the quality of the meat should be addressed by the prefets of Maradi and Tahoua when they meet the governors of Katsina and Sokoto States. It is within their power to greatly reduce this risk.

### 12.2 Collection and use of Nigerian livestock price information

The Niger government should have agents in major Nigerian cities gathering information about livestock and meat prices, prices for substitutes, and changes in government regulation. SONARA already has an agent in Kano, but he does not collect information for the livestock market. Kano is less important because Nigeriens are quite at home there and probably have good information. Southern markets are more alien to Nigerien traders and the lines of communication are more tenuous. It is there that a permanent presence would be of most help. Lagos is particularly important. Perhaps the Lagos agent could be based in the new SONERAN office there. Agents in other southern cities may also be justified. Training should be given to these commercial attachés by the Ministry of Commerce, Industry and Crafts, and/or the Ministry of

Animal Resources, as necessary. USAID should give maximum support to such training.

Niger can best serve her livestock traders by broadcasting this information over the radio as an integral part of the broadcasts of domestic livestock prices currently being developed by the Ministry of Animal Resources, as part of the Livestock Marketing Information System Project. This would allow Nigerien traders to be as informed as their Nigerian counterparts, perhaps better informed. Such a service would not replace existing information flows, but rather would complement them.

### 12.3 Use of Nigerian by-products for Nigerien fattening

At least until recently, Nigerian agricultural and industrial by-products have been cheaply available. If this continues, the prices and locations at which they may be bought should be made available to Nigerien livestock fatteners.

More generally, prices of all inputs to livestock raising which are available in Nigeria should be broadcast in Niger to support more intensive livestock raising. If cheaper Nigerian inputs are available there, fattened animals should be more profitably exported to Nigeria.

### 12.4 Review of cost of Nigerien transport

It may be that the cost of Nigerien transport has been shaved down to the bare minimum. The current study has not investigated this matter. However, any means of reducing transport costs would help Nigerien meat and livestock exports in two ways.

Firstly, it would make Nigerien meat more competitive. Meat must be carried by lorry and as long as Nigerien meat exports continue to be carried by expensive means, their export levels will remain relatively low.

Secondly, livestock exports by lorry from Niger directly to high-priced Nigerian markets would: persuade a higher percentage of exporters to pass through official exits (generating better statistics), reduce animal weight losses, allow a faster response time in reaction to Nigerian price information, provide more demand for Nigerien lorries on profitable, long-distance journeys on which they may use Nigerian fuel.

### 12.5 Dried meat for drought

The down side of future livestock exports is that some part of the anticipated increase in livestock exports to Nigeria will inevitably take place at low prices because of drought conditions in Niger. It would be irresponsible not to face up to this sad

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truth. Under such circumstances, it is not so much a case of maximising benefits as of minimising losses.

"An extremely severe dry season can greatly increase the number of cattle that are unfit for export but that can be salvaged by being used for dried beef." (Ferguson 1967:37)

The government should consider organising dried meat operations during droughts. These should be designed as part of a drought strategy to be put in place in preparation for drought, rather than after the drought has begun. Preparation would involve contacting butchers in each department and contracting with them that, in the event of poor rains, they would slaughter cull cattle purchased by the government at a set rate (to be revised annually).

If it becomes clear that poor rainfall will not produce enough browse and, particularly, grazing for the national herd, an initially high but declining price for cull animals would encourage herders to destock quickly to be able to put off selling their better animals. This would have the direct advantage of saving scarce pasture for those animals which have a better chance of surviving until the next rains.

The prevailing price for cull animals, and the lower next week's price, would be announced on the radio each week with other market price information. The initial price would vary across the country as a function of the Ministry of Animal Resources estimates of regional pasture shortages from local reports and satellite data.

There would be no ban on traders buying up weak animals from herders and bring them to the dried meat centres: anyone, herder or not, who brought in the cull animals would be paid the going rate. Herders would benefit from the higher pasture for each remaining animal, even if they did not receive the full price for the sale.

The other half of the operation would be for SONERAN and/or private traders to sell the dried meat, having made at least tentative prior agreements with buyers in southern Nigeria (and perhaps, so as not to dump all the dried meat in one country in which meat prices would already be depressed because of the poor Sahelian rains, in other countries which enjoy dried meat, such as Liberia). The aim would be to avoid handing over the value-added to traders in northern Nigeria.

As a high value product, it is likely that dried meat could profitably be flown from Niger to any number of destinations. Airfreight prices should have been negotiated on an annual basis, before the drought begins, so that the meat can move swiftly to its destination. Similarly, arrangements with prospective buyers

should have included arrangements for irrevocable letters of credit from their banks, to speed payments for the meat.

Similarly SNCP, SONITAN and/or private traders would be prepared to market or process the hides and skins from the culled animals. Hides and skins represent a relatively high proportion of the value of cull animals. A successful marketing and processing strategy for them could make a sizable difference to the operation's revenue.

The whole operation could be presented to a donor as a project to be undertaken in the event of drought. Financing need not involve a grant. A loan would allow the initial purchases, meat preparation and transport to consumption markets. The proceeds from the sales would allow relatively swift repayment. The goal of the programme is to give strong incentives for destocking without making a financial loss. The real benefits to Niger would be saving progenitors for the post drought herd reconstruction (which has in the past involved costly projects, is always slow, and results in much lower production of livestock products for domestic and export markets).

#### 12.6 Future study

This study has not gathered current information about Nigeria's dried meat and corned beef industries. Therefore no recommendations can be made about the potential competitiveness of Nigerian dried meat production with these industries in non-drought years. The study has also neglected to collect time series data for fish prices. Such information is necessary for a complete understanding of the Nigerian meat and livestock markets and should be collected during future work in this area.

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Appendix I  
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Appendix 2

Nigerian imports of livestock and meat  
by country of origin: 1984-86

Tables covering 1984 and 1985 are taken from the draft tables for the 1985 FLD annual report. Tables covering 1986 are from the 1986 equivalent.

The data is clearly incomplete. The appendix serves to show the range of different sources from which Nigeria received livestock and livestock products.

Table 4.3 Number and Value of Live Animal and Poultry Imports, Nigeria, 1966

	Cattle and Buffaloes		Poultry		Horses, Asses and Mules		Sheep, Lambs, and Goats		Live Animals and Birds, nec	
	Number	Value (NAIRA)	Number	Value (NAIRA)	Number	Value (NAIRA)	Number	Value (NAIRA)	Number	Value (NAIRA)
Argentina	---	---	---	---	43	82,283	---	---	---	---
Belgium & Luxemborg	---	---	3,400	196,285	---	---	---	---	---	---
Cameroon	---	---	6	10	---	---	---	---	---	---
Chad	1,000	320,003	---	---	---	---	2,300	185,769	---	---
Denmark	---	---	15,500	66,805	---	---	---	---	---	---
Fed. Republic of Germany	---	---	625	21,889	---	---	---	---	---	---
France	---	---	11,426	228,512	---	---	---	---	---	---
Ghana	---	---	---	---	---	---	---	---	---	---
India	---	---	---	---	---	---	---	---	3,870	96,749
Israel	---	---	9,869	255,556	---	---	---	---	---	---
Italy	---	---	---	---	79	1,571	---	---	---	---
Japan	---	---	---	---	---	---	---	---	83	2,070
Netherlands	---	---	49,656	386,100	---	---	---	---	34,916	222,191
Niger	3,633	1,621,870	---	---	---	---	---	---	---	---
Norway	179	7,142	---	---	---	---	---	---	---	---
United Kingdom	---	---	948,318	1,298,345	1,133	464,816	---	---	---	---
United States of America	---	---	70	175,089	---	---	---	---	---	---
Unspecified (South America)	---	---	---	---	---	---	---	---	---	---
Switzerland	---	---	356	25,052	---	---	---	---	---	---
<b>NIGERIA</b>	<b>4,812</b>	<b>1,949,015</b>	<b>1,039,226</b>	<b>2,653,643</b>	<b>1,255</b>	<b>548,670</b>	<b>2,300</b>	<b>195,769</b>	<b>38,869</b>	<b>321,010</b>

Notes: N/A: Data not available.  
 ---: No recorded imports

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Table 4.3 Number and Value of Livestock Imports, Nigeria, 1984

	Cattle and Buffaloes		Swine		Poultry		Horses, Asses and Mules		Sheep, Lambs and Goats	
	Number	Value (NAIRA)	Number	Value (NAIRA)	Number	Value (NAIRA)	Number	Value (NAIRA)	Number	Value (NAIRA)
Belgium & Luxemborg	241	6,040	---	---	104,037	27,237	---	---	---	---
Denmark	---	---	---	---	136,000	65,415	---	---	---	---
Fed. Republic of Germany	---	---	---	---	72,153	72,156	72,156	---	---	---
Ghana	---	---	---	---	---	---	6	2,165	---	---
Italy	---	---	168	19,904	---	---	---	---	---	---
Netherlands	---	---	---	---	2,957,425	1,326,872	---	---	---	---
United Kingdom	---	---	---	---	721,154	742,956	---	---	---	---
United States of America	---	---	---	---	270,025	54,605	---	---	---	---
Unspecified (South America)	---	---	---	---	27,135	5,427	---	---	---	---
Nigeria	241	6,040	168	19,904	4,287,929	2,294,068	72,162	2,185	0	0

Sources: (1) Annual Trade Summary, 1984; Federal Office of Statistics, Lagos

Notes: N/A: Data not available.  
 ---: No recorded imports

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Table 4.4 Number and Value of Live Animal Imports, Nigeria, 1985

	Cattle and Buffaloes		Swine		Poultry		Horses, Asses and Mules		Sheep, Lambs and Goats	
	Number	Value (NAIRA)	Number	Value (NAIRA)	Number	Value (NAIRA)	Number	Value (NAIRA)	Number	Value (NAIRA)
Belgium & Luxemborg	---	---	---	---	1,957	37,440	---	---	---	---
Comoro Islands	352	176,109	---	---	---	---	---	---	---	---
Denmark	---	---	1,024	120,908	---	---	---	---	---	---
Fed. Republic of Germany	---	---	---	---	7,015	47,674	---	---	---	---
France	---	---	---	---	366	1,998	---	---	---	---
Israel	---	---	---	---	363,925	25,114	---	---	---	---
Italy	---	---	---	---	102,628	41,995	---	---	---	---
Netherlands -	---	---	---	---	1,384,094	1,134,042	---	---	---	---
Niger	2,010	689,829	---	---	---	---	---	---	---	---
Switzerland	---	---	---	---	189	56,936	---	---	---	---
Tchad	1,000	305,446	---	---	---	---	---	---	---	---
United Kingdom	---	---	---	---	1,367,871	2,114,896	---	---	172	77,158
United States of America	---	---	---	---	57,772	129,394	---	---	---	---
<b>Nigeria</b>	<b>3,362</b>	<b>1,171,384</b>	<b>1,024</b>	<b>120,908</b>	<b>3,285,817</b>	<b>3,633,579</b>	<b>0</b>	<b>0</b>	<b>172</b>	<b>77,158</b>

Sources: (1) Annual Trade Summary, 1985; Federal Office of Statistics, Lagos

Notes: N/A: Data not available.  
 ---: No recorded imported

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Table 4.5 Quantity and Value of Meat, Meat Preparations, C s and Skins Imports, Nigeria, 1984

	Fresh		Other Meat		Corred Beef		Other		Hides and Skins	
	Quantity (KG.)	Value (NAIRA)								
Argentina	---	---	---	---	8,160	23,973	---	---	---	---
Australia	14,263	13,147	---	---	---	---	---	---	---	---
Brasil	---	---	---	---	1,066,505	1,060,497	---	---	---	---
Burkina Fasso	1,490,000	1,556,055	---	---	---	---	---	---	---	---
Denmark	421,481	456,956	---	---	---	---	---	---	---	---
France	1,468,999	1,810,873	---	---	---	---	201,965	102,270	---	---
Hong Kong	---	---	---	---	---	---	2,508	7,524	---	---
India	296,300	306,996	---	---	---	---	---	---	---	---
Italy	13,783	27,566	1,722	4,649	---	---	---	---	---	---
Nederlands	1,179,320	1,179,320	---	---	---	---	---	---	---	---
Niger	855,185	901,664	---	---	---	---	---	---	---	---
Senegal	---	---	3,310	3,310	---	---	---	---	---	---
Spain	129,398	113,094	---	---	---	---	---	---	---	---
Sweden	---	---	---	---	---	---	---	---	9,013	9,013
United Kingdom	333,075	395,555	64,807	253,292	---	---	---	---	---	---
United States of America	2,222,177	1,935,638	---	---	---	---	2,230	4,460	---	---
USSR	---	---	---	---	7,587	7,587	26,633	37,978	---	---
Unspecified	---	---	---	---	---	---	---	---	1,560	15,030
<b>Nigeria</b>	<b>8,323,981</b>	<b>8,696,864</b>	<b>69,839</b>	<b>261,251</b>	<b>1,082,252</b>	<b>1,892,057</b>	<b>233,336</b>	<b>152,232</b>	<b>10,513</b>	<b>24,013</b>

Sources: (1) Annual Trade Summary, 1984; Federal Office of Statistics, Lagosnary Division)

Notes: N/A: Data not available.  
 ---: No recorded imports

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Table 4.6 Quantity and Value of Meat, Meat Preparations, Bones and Skins Imports, Nigeria, 1985

	Fresh		Fried		Canned Beef		Canned & Prepared	
	Quantity (KG.)	Value (NAIRA)	Quantity (KG.)	Value (NAIRA)	Quantity (KG.)	Value (NAIRA)	Quantity (KG.)	Value (NAIRA)
Argentina	36,370	19,000	---	---	108,705	217,411	---	---
Belgium	2,000,000	370,504	---	---	---	---	---	---
Burkina Fasso	280,000	675,996	---	---	---	---	---	---
France	55,230	70,095	---	---	---	---	---	---
Fed. Republic of Germany	21,014	128,139	49	433	1,254	3,826	4,743	17,609
Italy	---	---	994	1,172	---	---	717	2,152
Nederlands	---	---	---	---	---	---	---	---
Niger	392,794	1,263,304	---	---	---	---	---	---
United Kingdom	436,418	704,815	---	---	---	---	4,052	20,255
USSR	---	---	---	---	4,010	12,030	28,023	95,251
<b>Nigeria</b>	<b>3,221,826</b>	<b>3,231,763</b>	<b>1,043</b>	<b>1,605</b>	<b>113,969</b>	<b>233,267</b>	<b>37,555</b>	<b>135,270</b>

Sources: (1) Annual Trade Summary, 1984; Federal Office of Statistics, Lagosary Division)

Notes: N/A: Data not available.  
 ---: No recorded imports

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Appendix 3  
Sources of information  
on cross-border flows

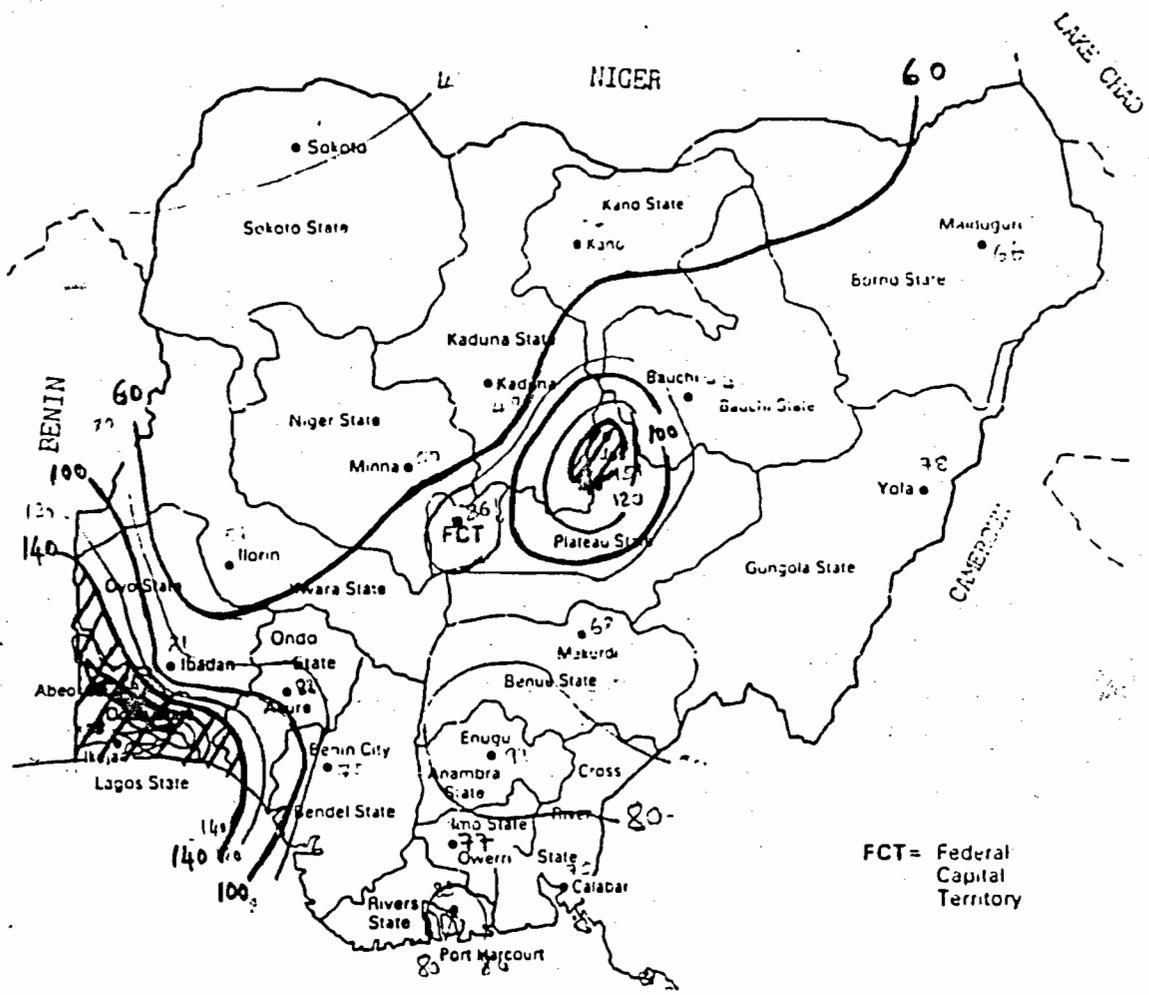
Data on livestock flows across the Niger-Nigeria border gathered in Nigeria came from three sources:

1. reports and draft reports from FLD and FLPCS at the national level. Imports from neighbouring countries are tabulated by species and by state of entry. Until recently FLPCS's statistics and computing power has been based in Ibadan, but now that almost all of the Ministry of Agricultural and Natural Resources has moved to Abuja, these functions are expected to follow soon.
2. data kept at the Kano Zonal Livestock Office, either on its way to FLPCS or copies kept at this level. This data had already been aggregated to the State level. Little is available at the state ministerial level.
3. notebooks of the livestock agents at the Illéla veterinary control post on the Niger border, and carbon copies of data sheets already sent to Sokoto.

Data for Niger came from Douane, on diskette, the data entry having been overseen by Dr. Henri Josserand, formerly the University of Michigan team leader for USAID's ASDG Programme. The period covered was October 1984 until September 1988. The data, already ostensibly entered in the Douane computer room, was re-entered under Dr. Josserand's supervision to improve its quality for a study he was doing on agricultural exports.

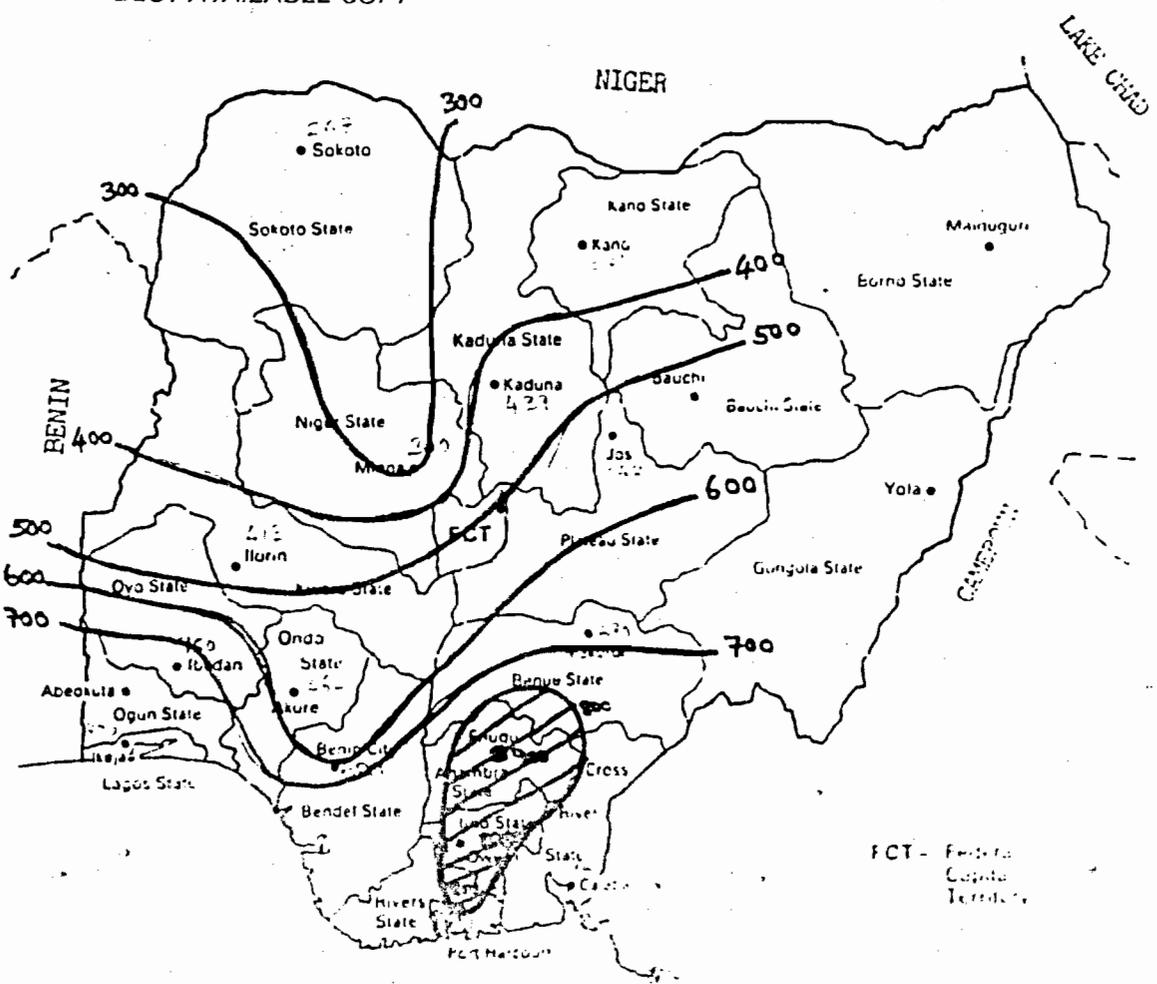
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Appendix 4  
Isocost maps for livestock and meat

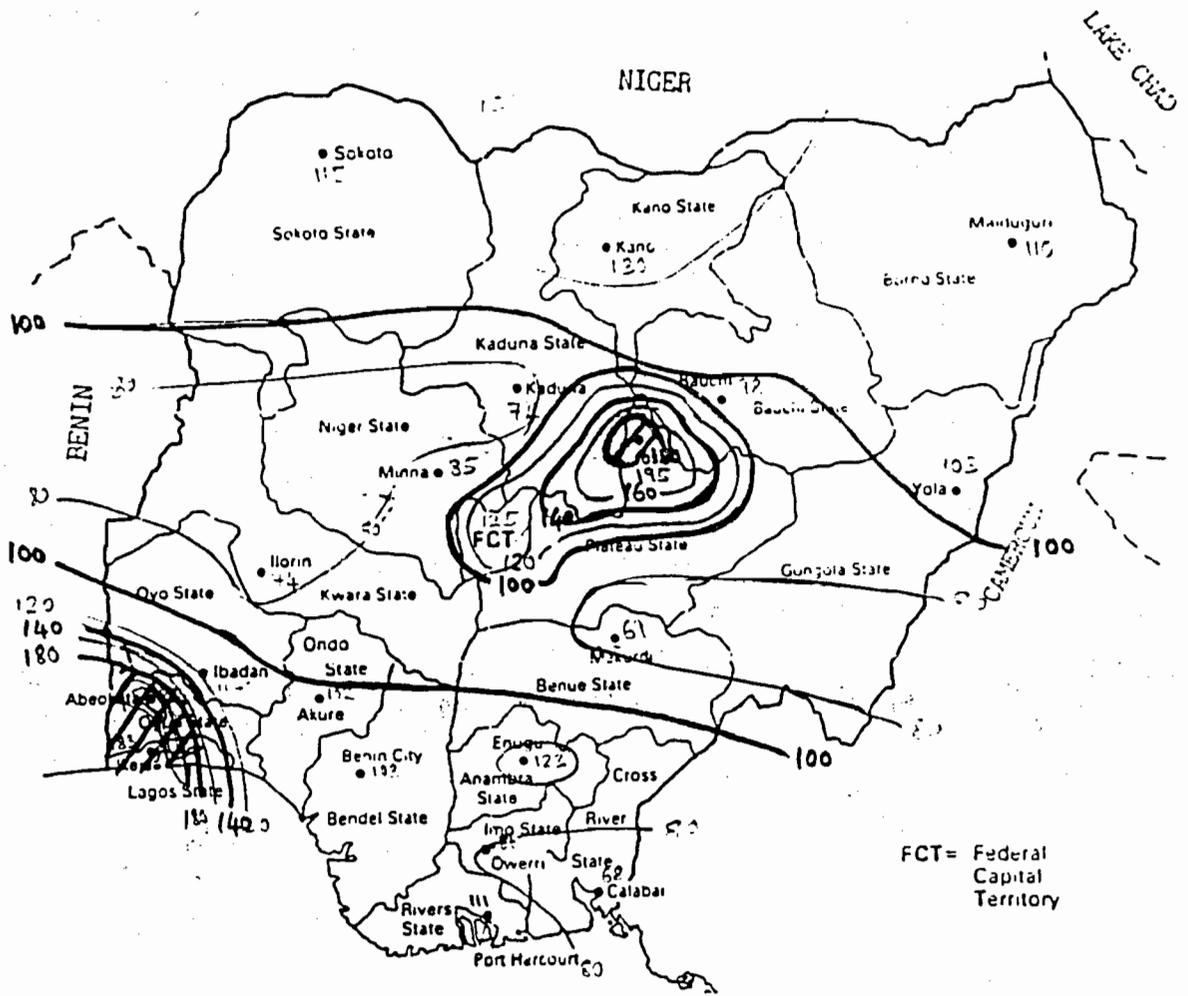


1984  
 north  
 Nigeria  
 1984

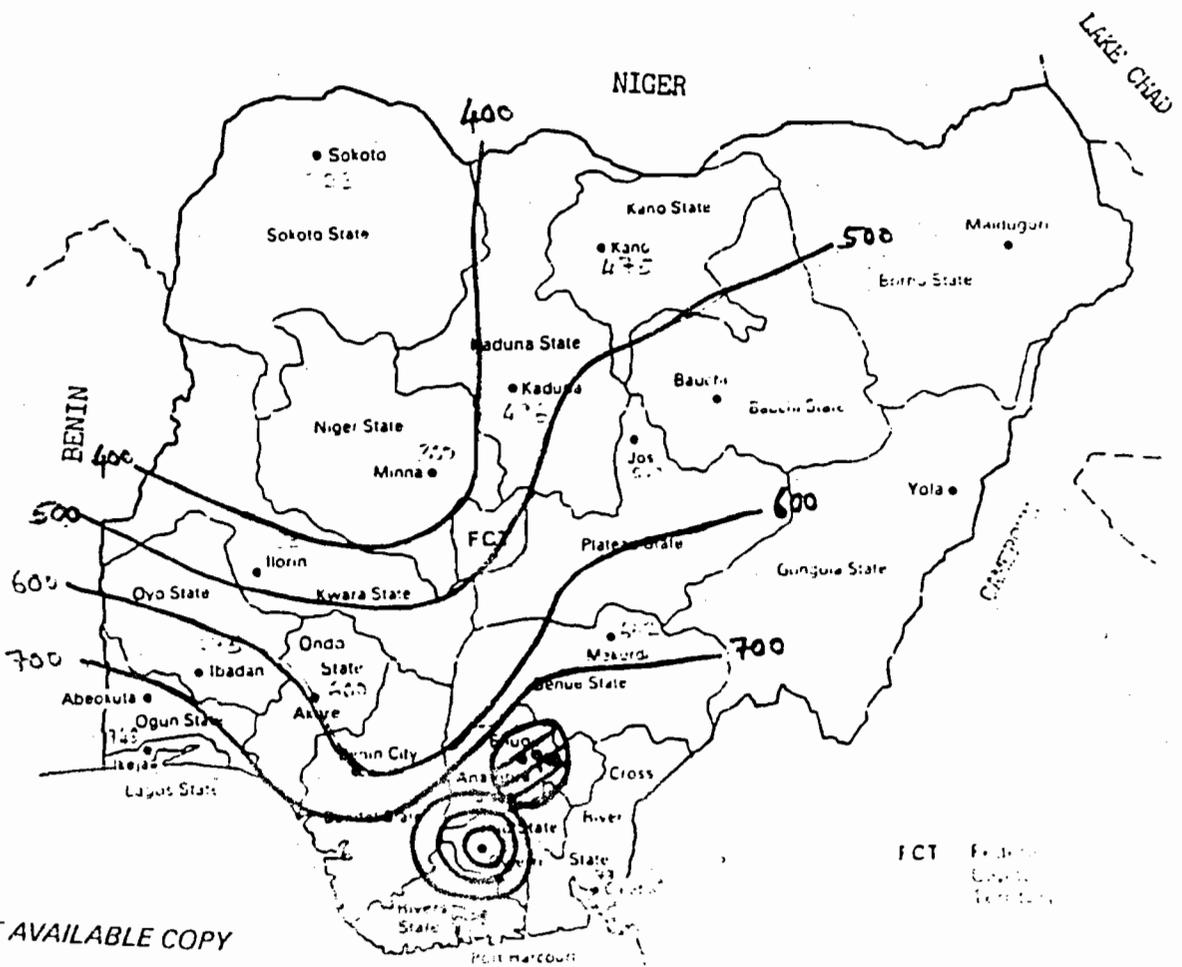
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1984  
 north  
 Nigeria  
 1984

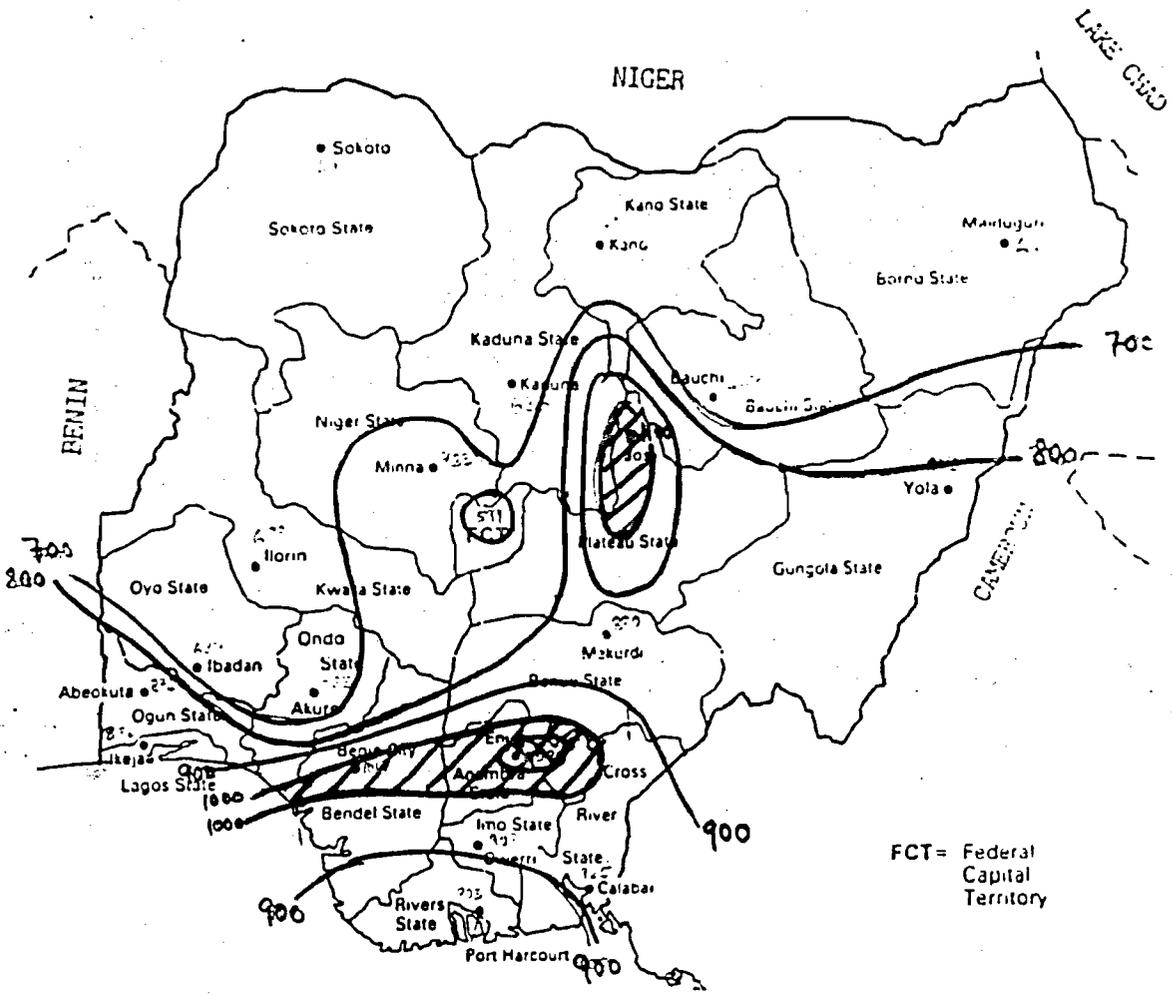


FCT = Federal Capital Territory

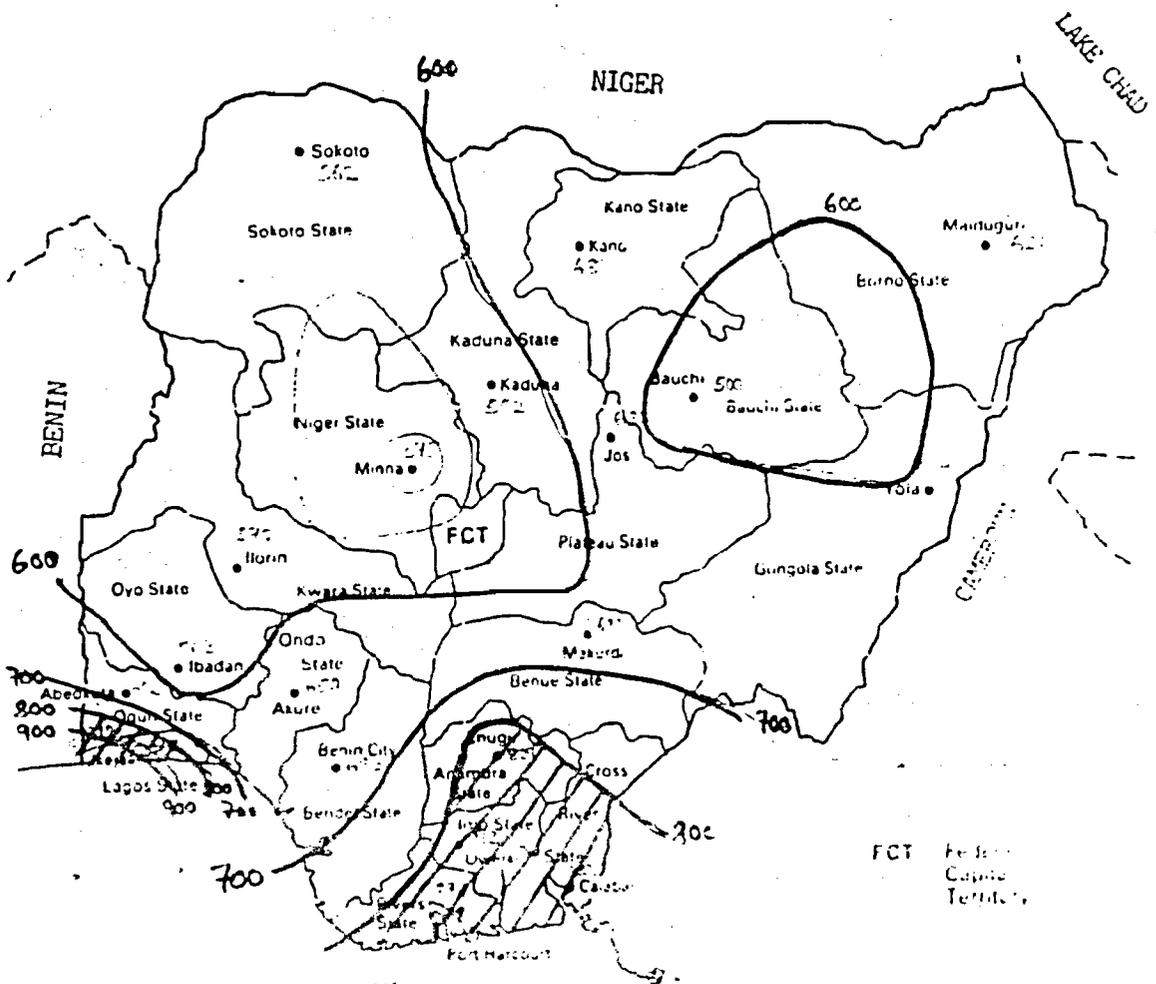


FCT = Federal Capital Territory

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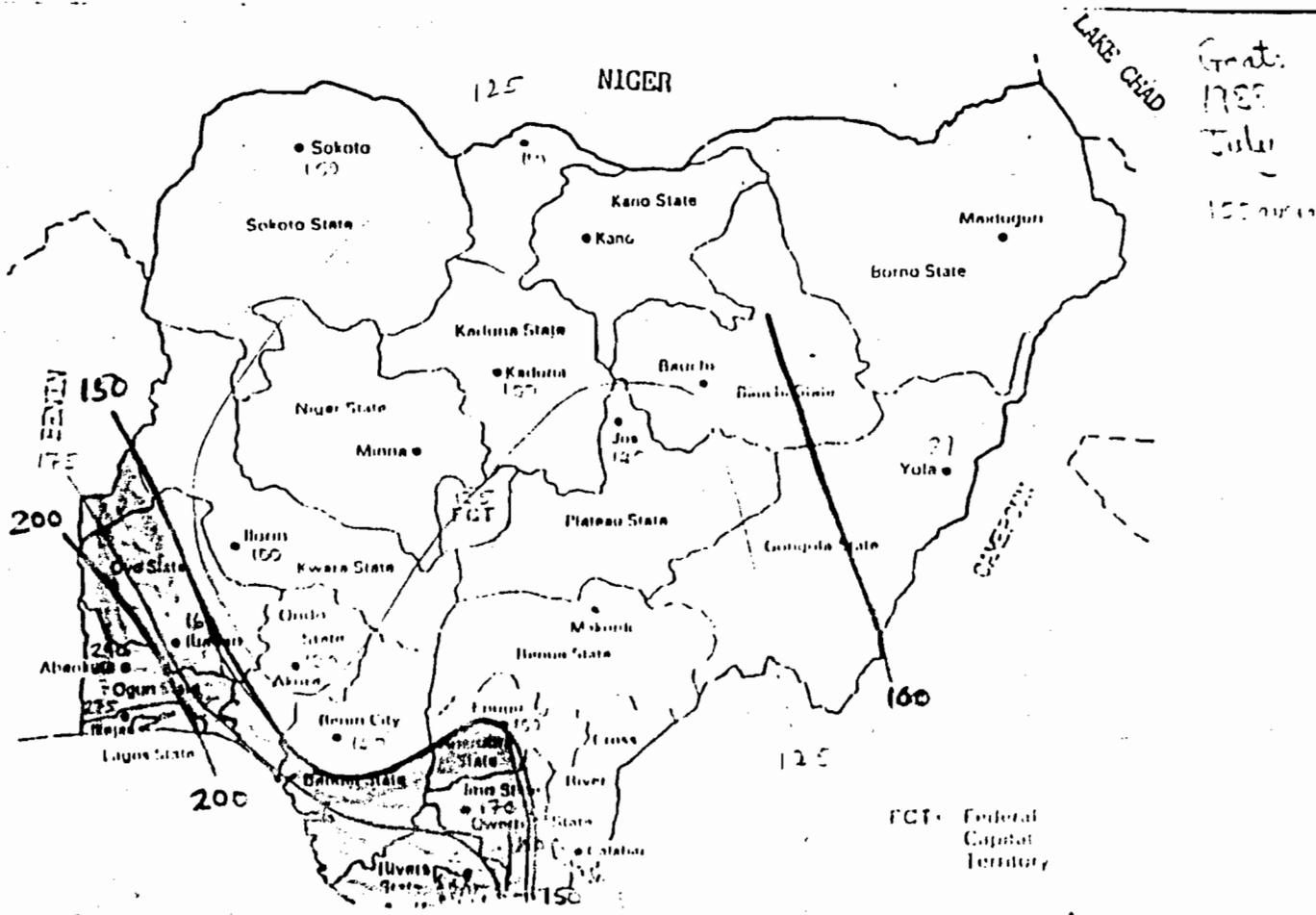
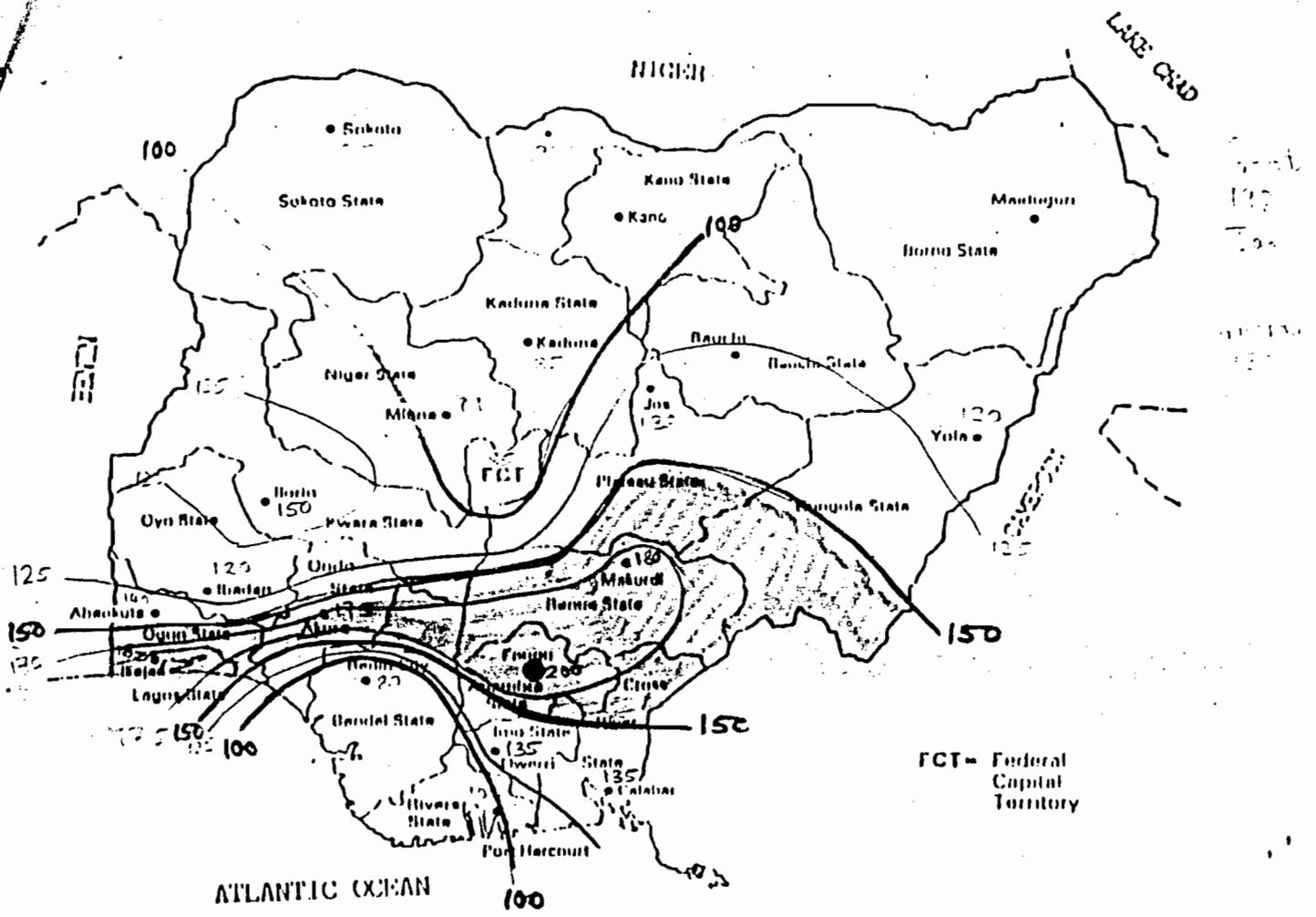


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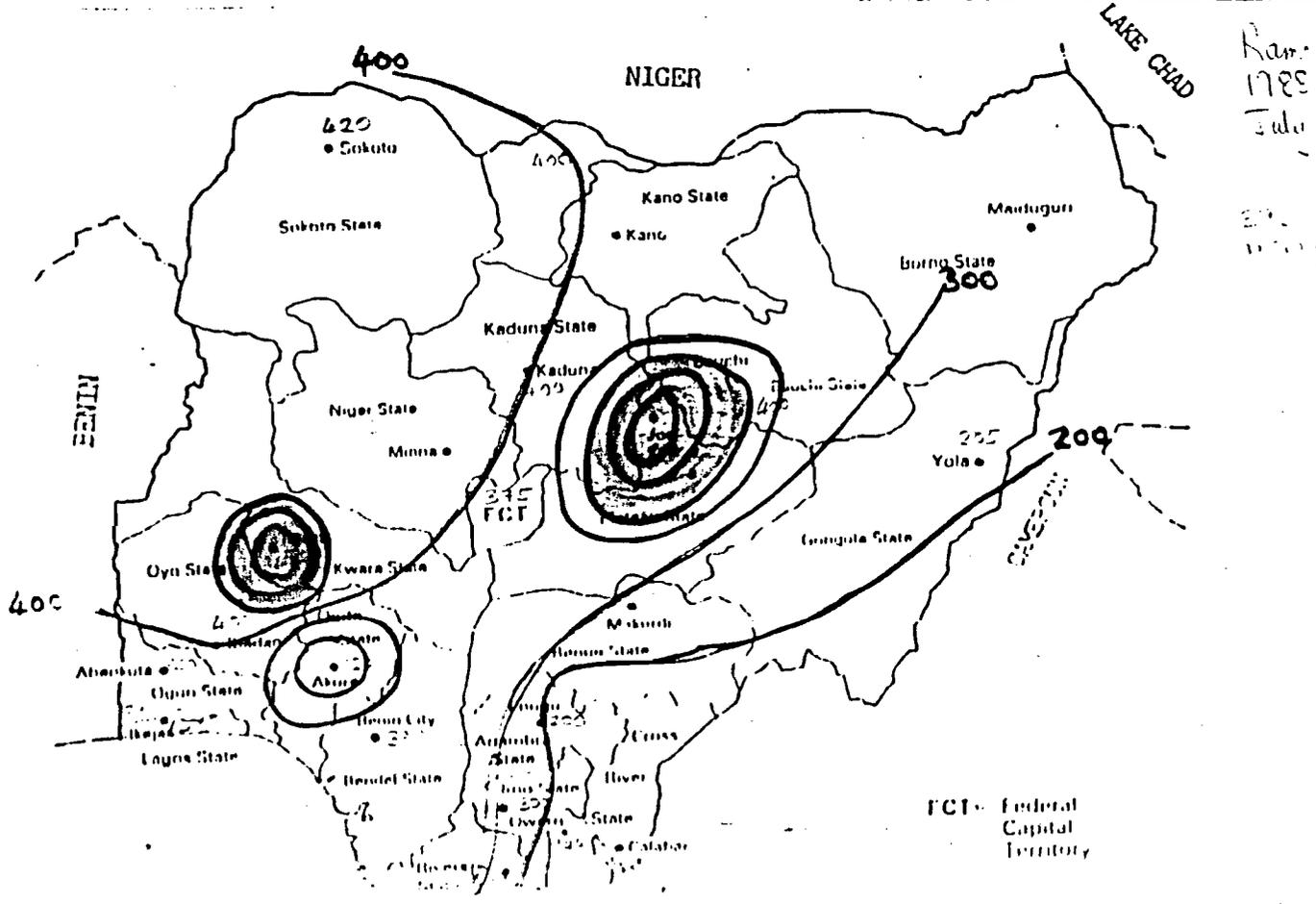
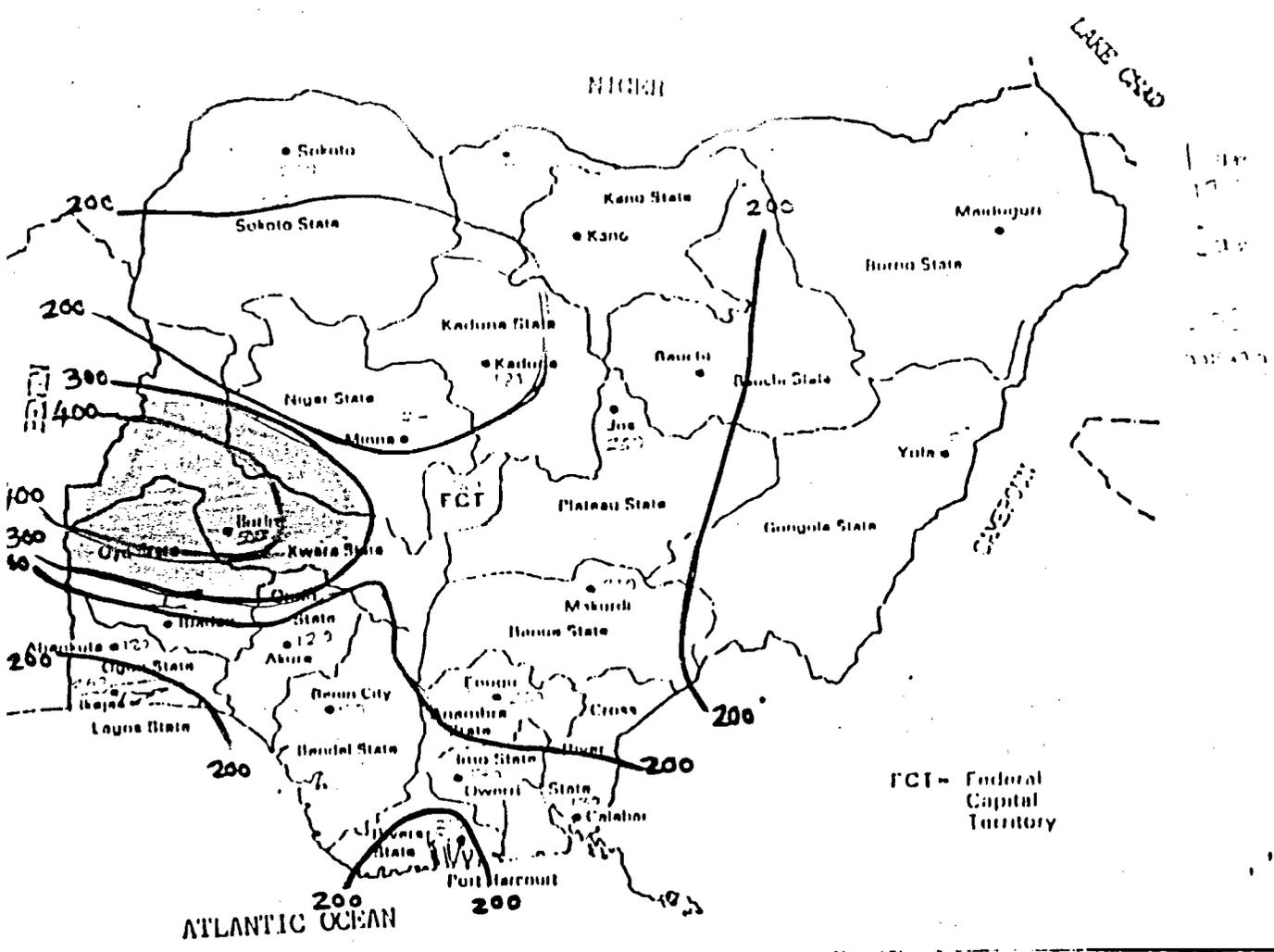


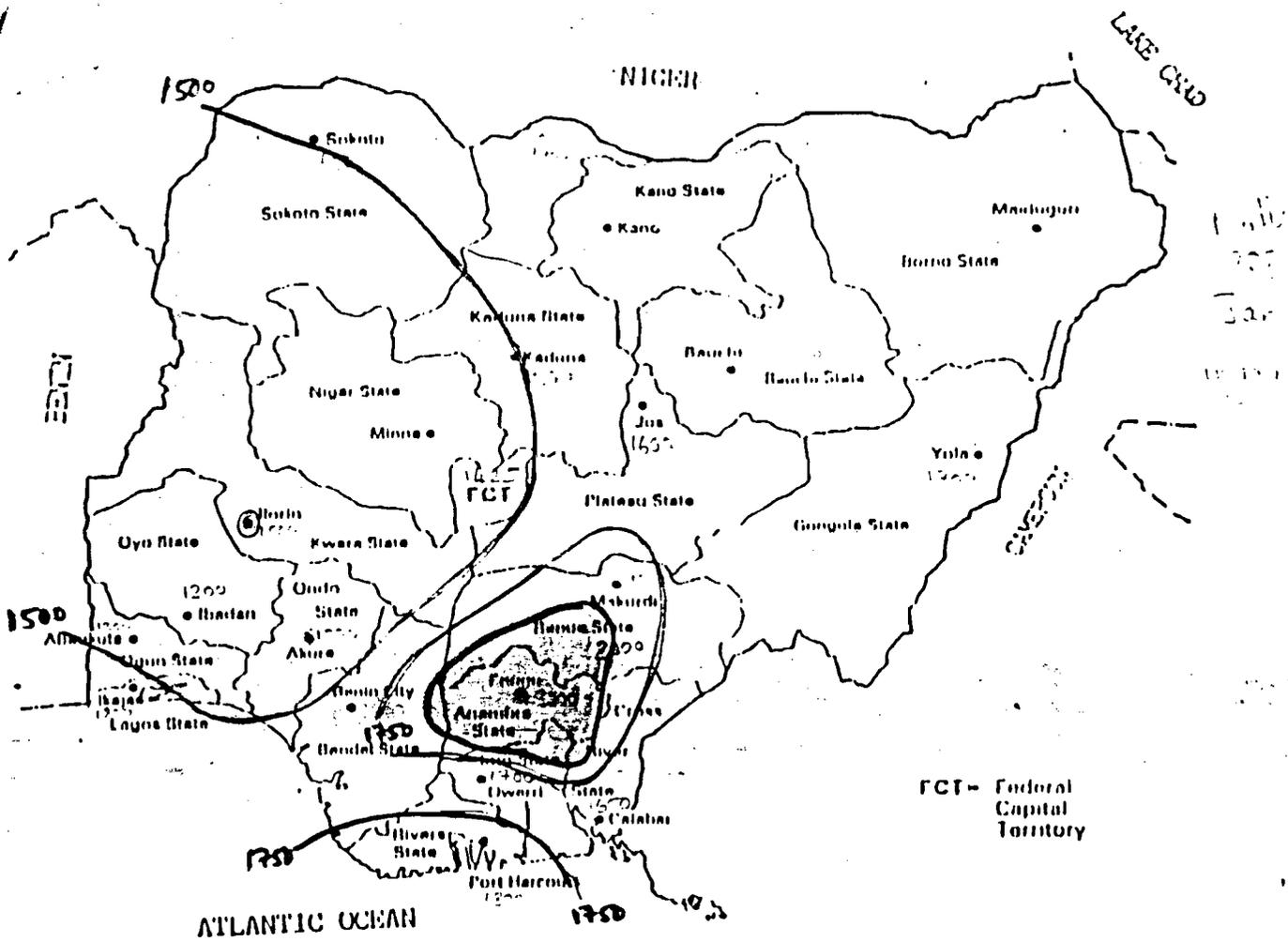
1984  
600  
610

FCT = Federal Capital Territory

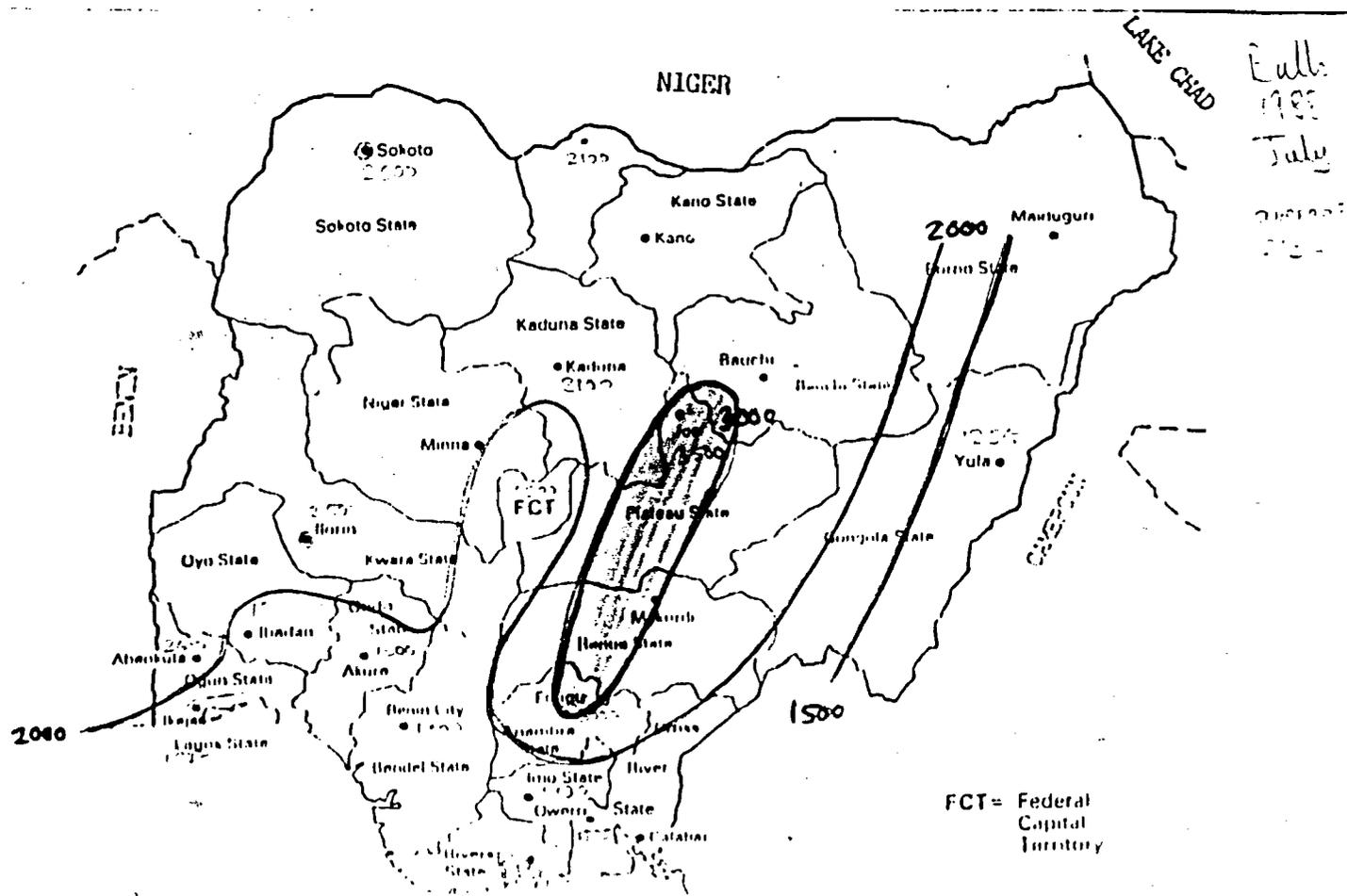


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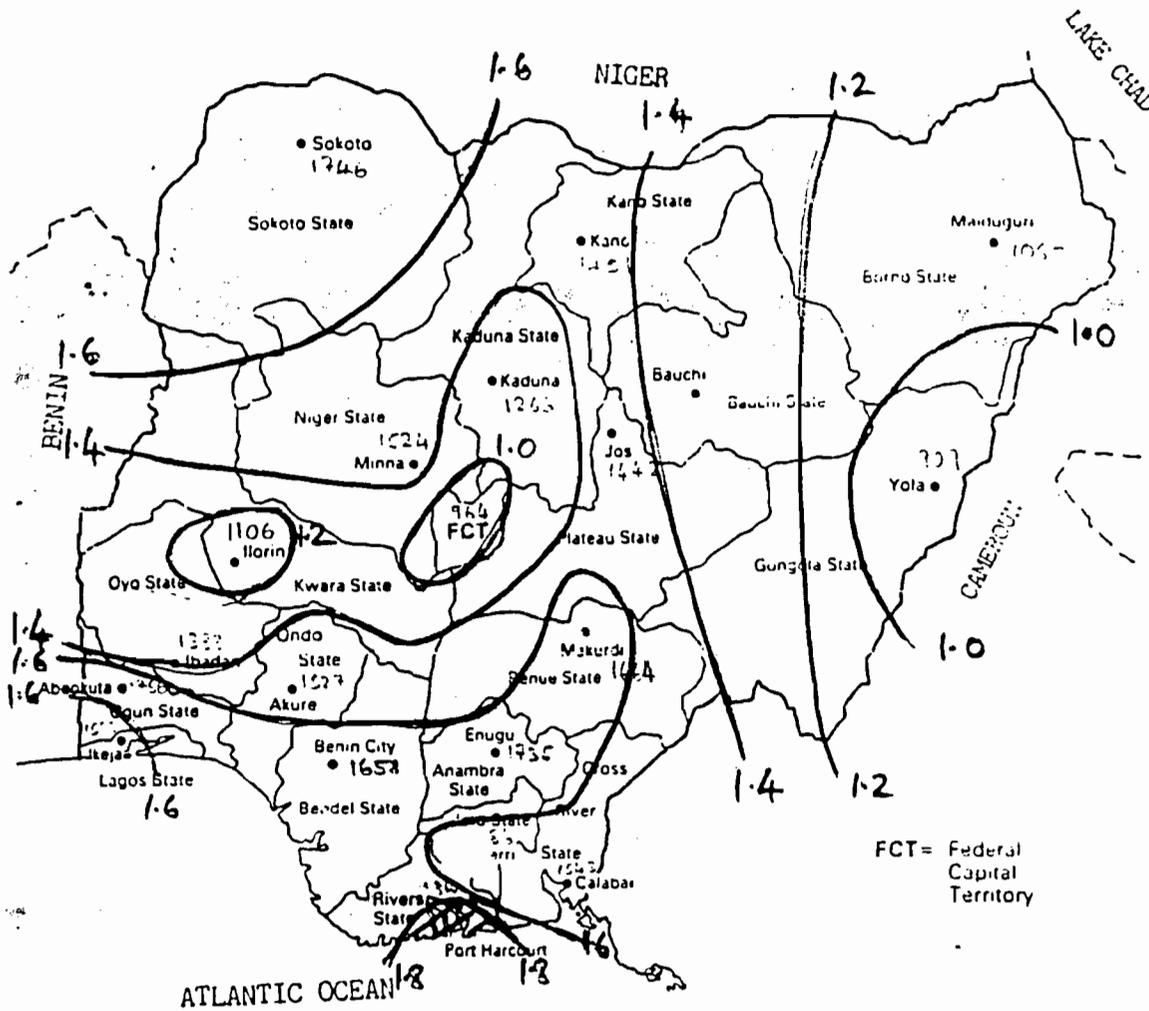




Full  
700  
300  
1000

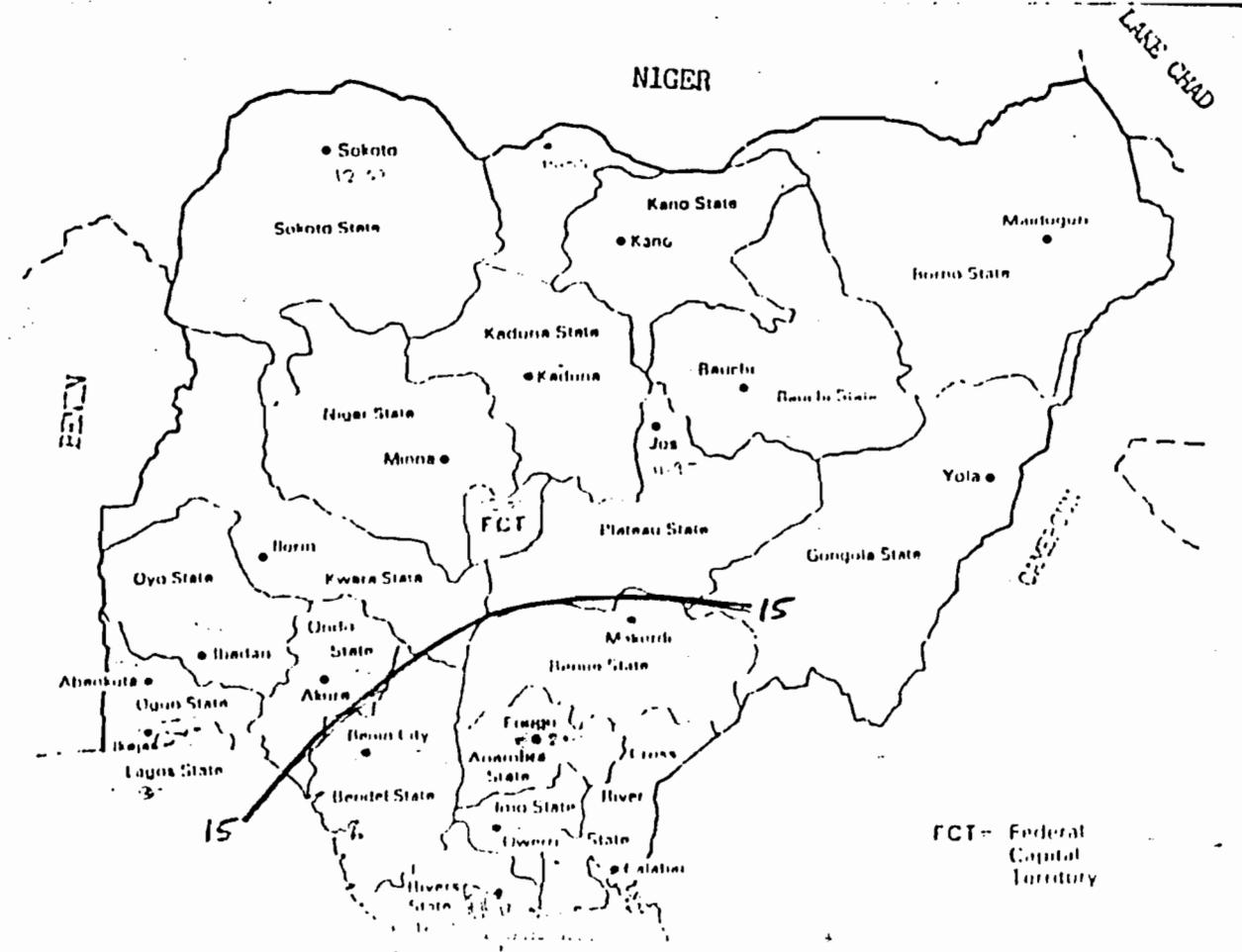
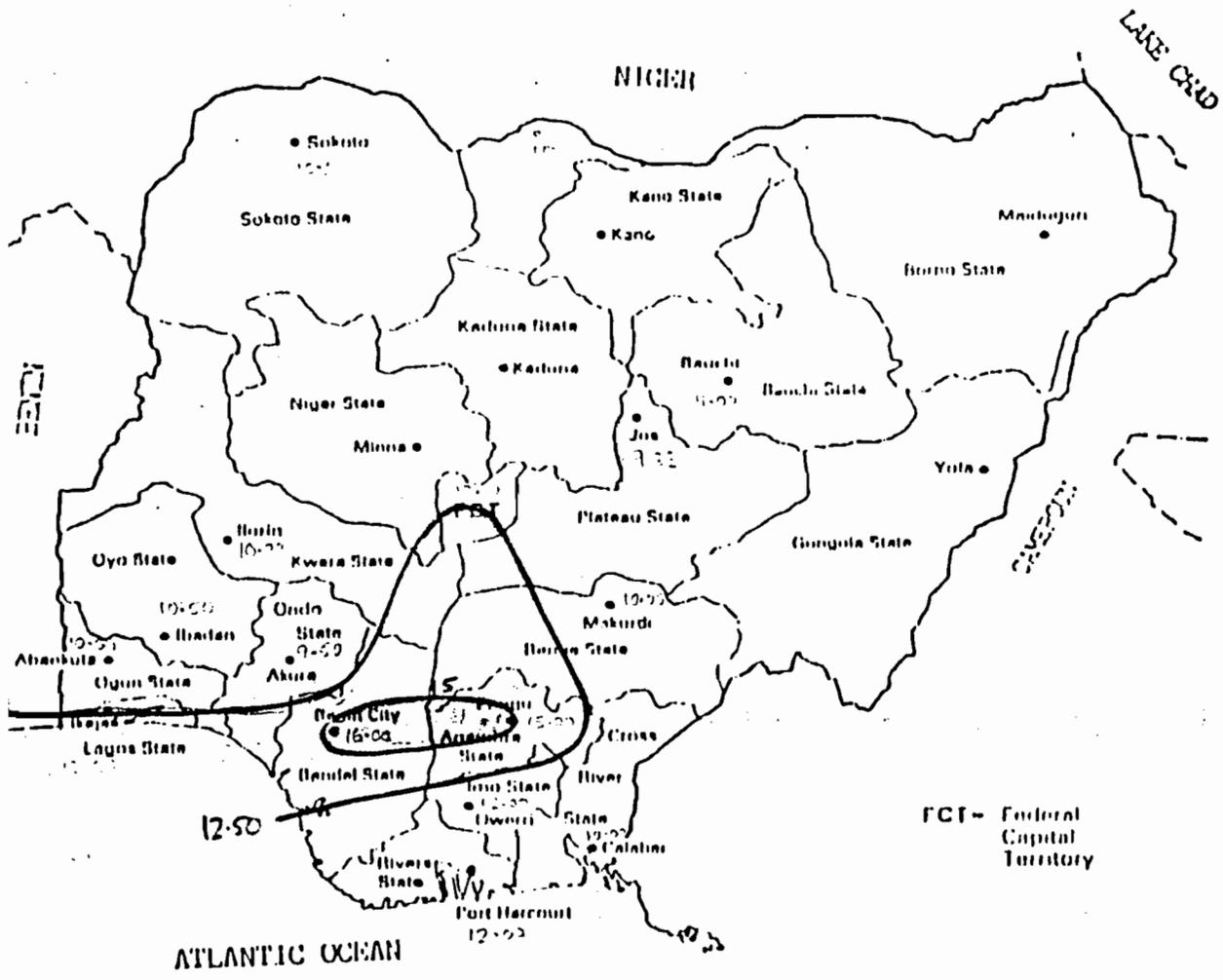


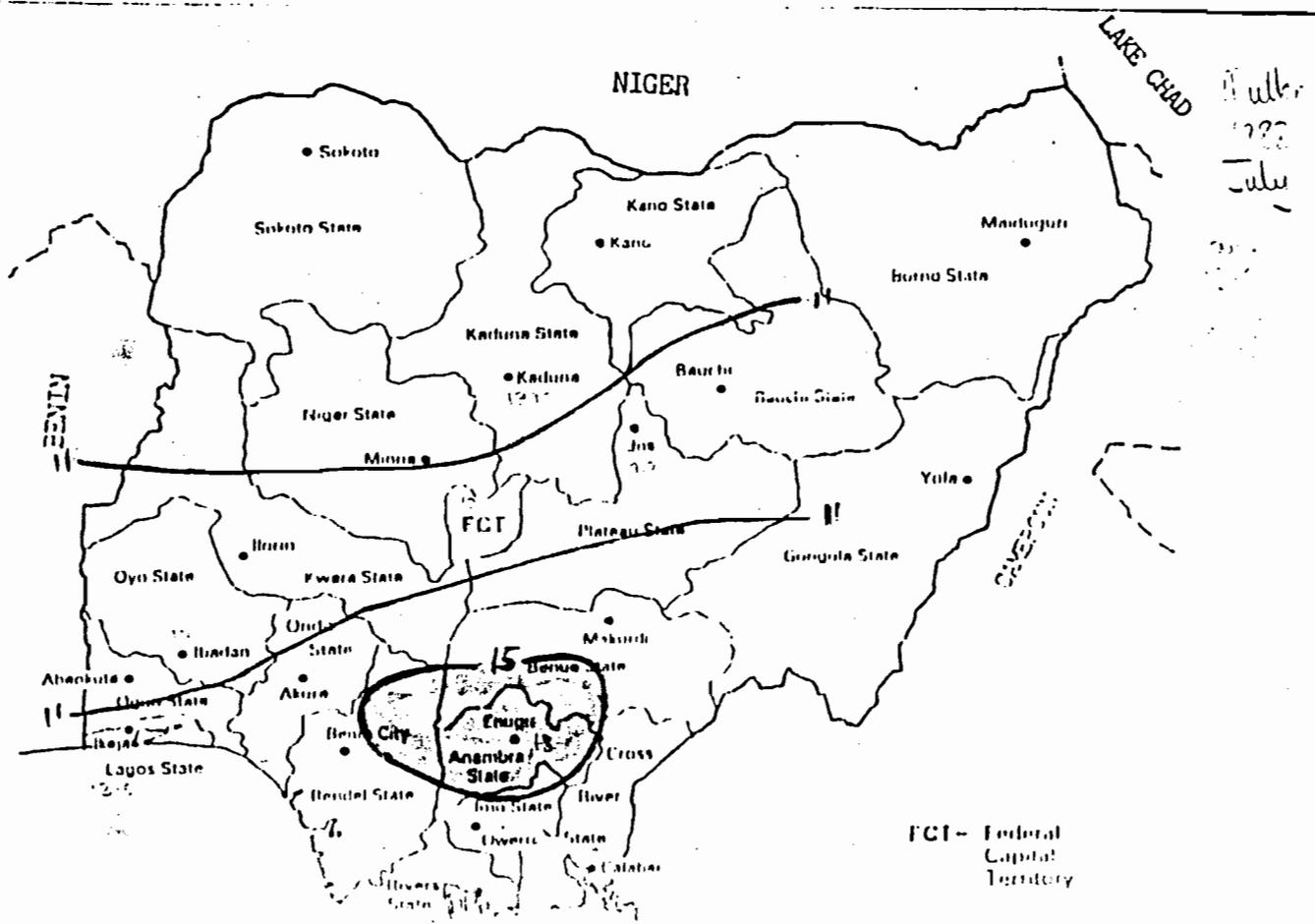
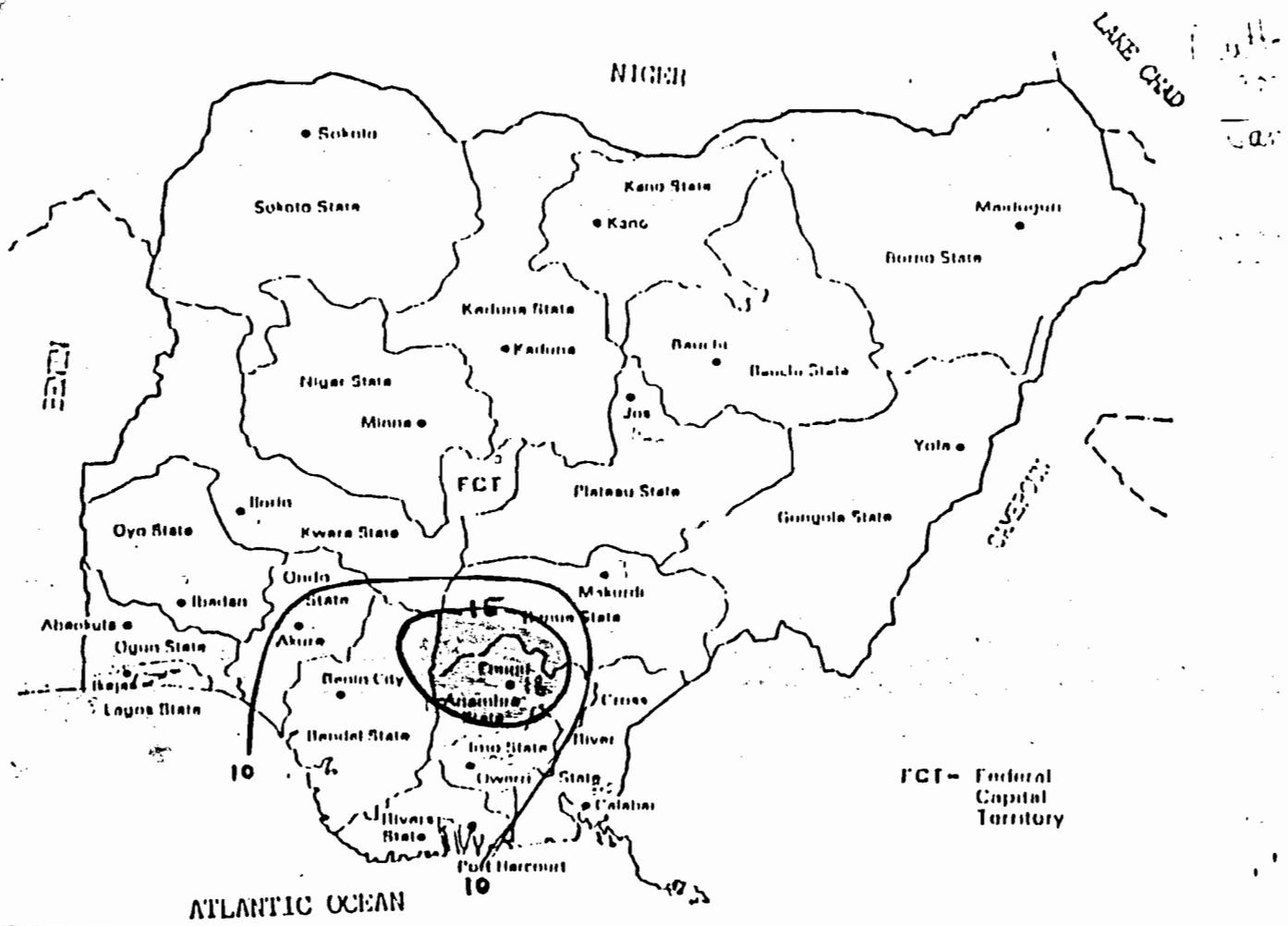
Full  
1900  
July  
2000  
1000

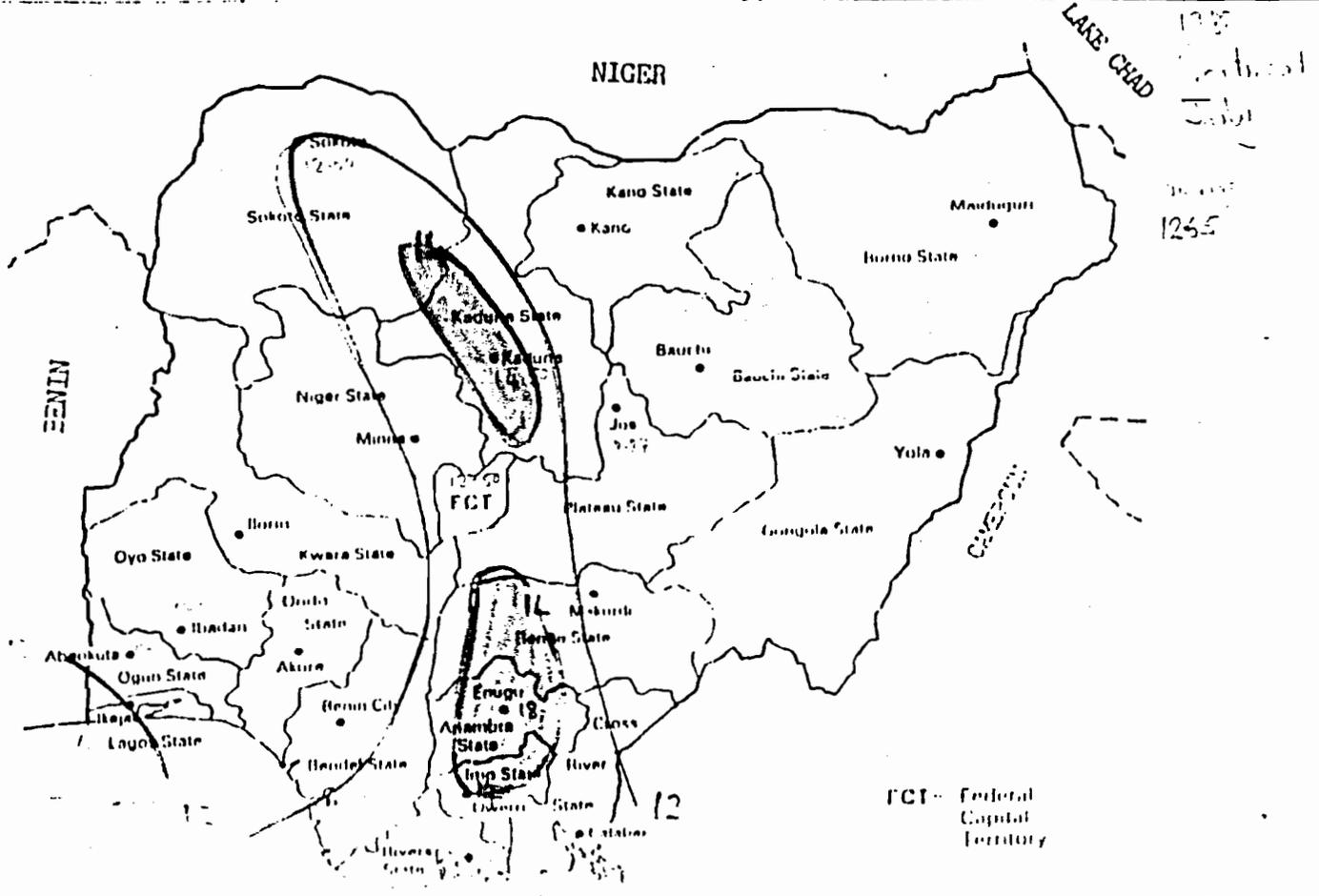
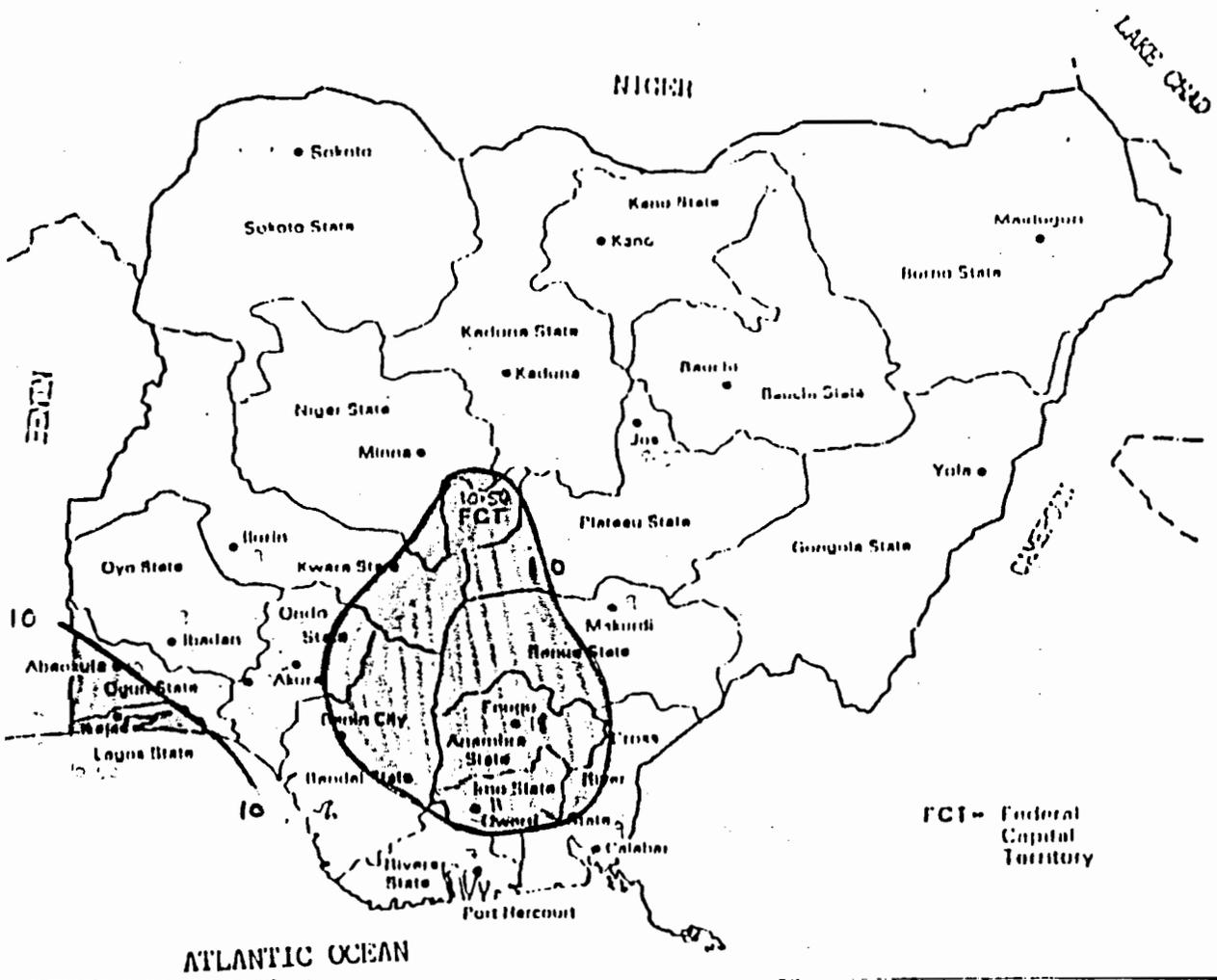


Bull  
 1000+  
 per her  
 1986  
 1987  
 1988

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Tableau 4.1 - Evolution de la répartition des financements du Secteur Elevage

Unité : Mi

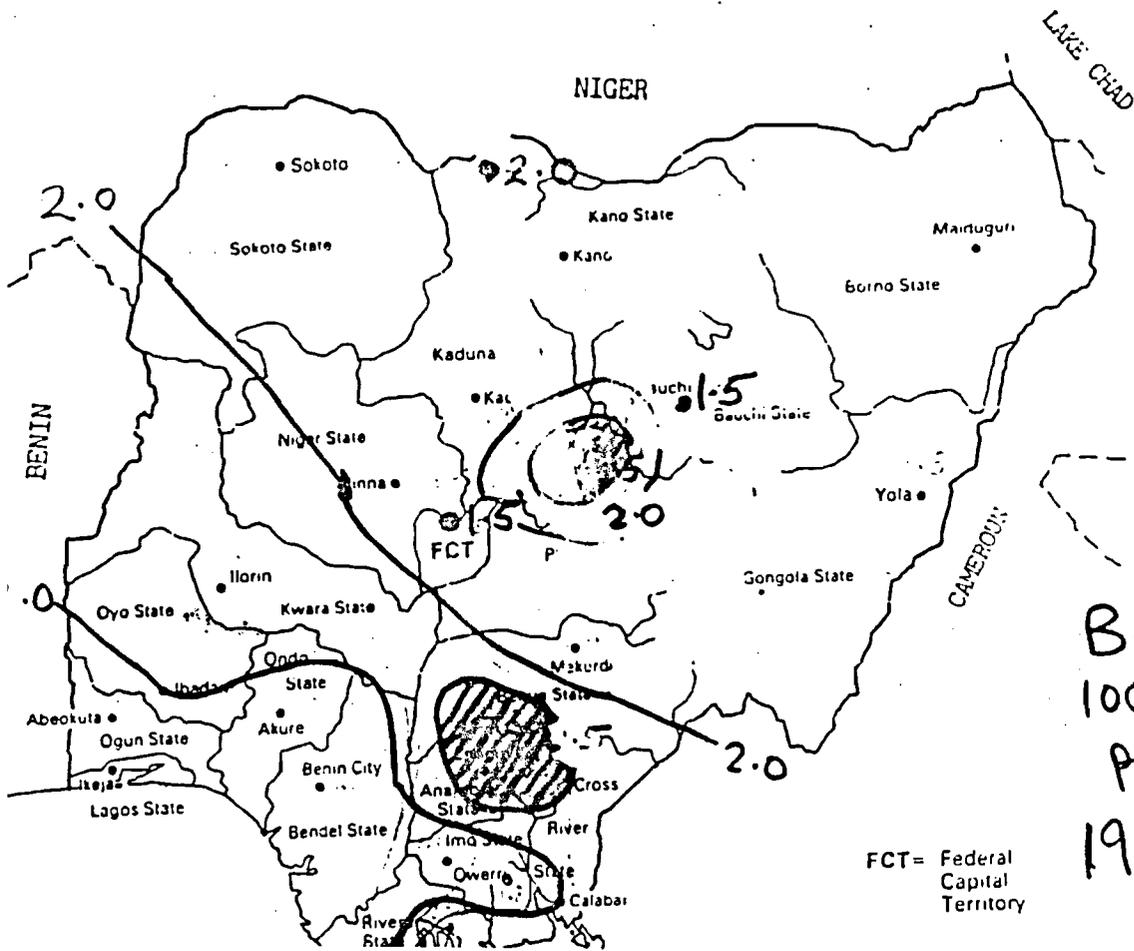
Programmes d'investissements	Réalizations 1962-1970		Plan 1979-1983		
			Programmés		Réali:
Protection sanitaire	1.342	25,7 %	5.047	19,1 %	1.858
Hydraulique pastorale	1.397	26,7 %	4.000(1)	15 %	420(1)
Secteur moderne/intensif	1.336	25,6 %	4.841	18,3 %	4.083
Commercialisation/transformation	568	10,9 %	3.216	12,2 %	857
Sous-total	4.643	88,9 %	17.104	64,6 %	7.218
Amélioration secteur traditionnel	224	4,3 %	8.249	31,2 %	3.654
Formation-Recherche	358	6,8 %	1.097	4,2 %	200(2)
Total Francs courants	5.225	100,0 %	26.450	100,0 %	11.072
Total /an Francs 1985	4.063		8.520		3.565

(1) Estimations pour 796 puits programmés et 60 réalisés

(2) Estimation

Sources : BIRD-1972 (Cf. Doc n° 5) et PIC 1984-1985.

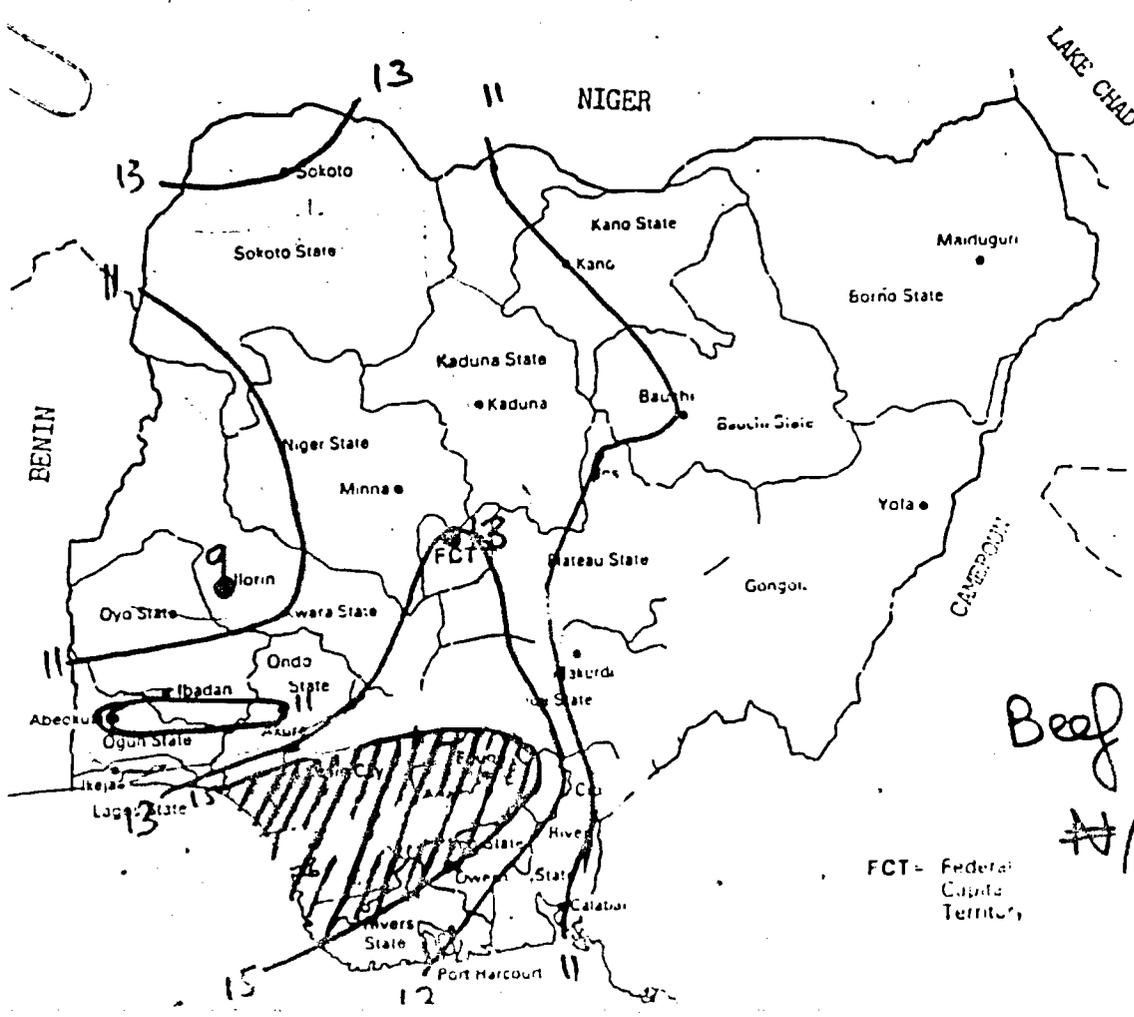
REST AVAILABLE COPY



Bulls  
1000#  
per head  
1988

FCT = Federal  
Capital  
Territory

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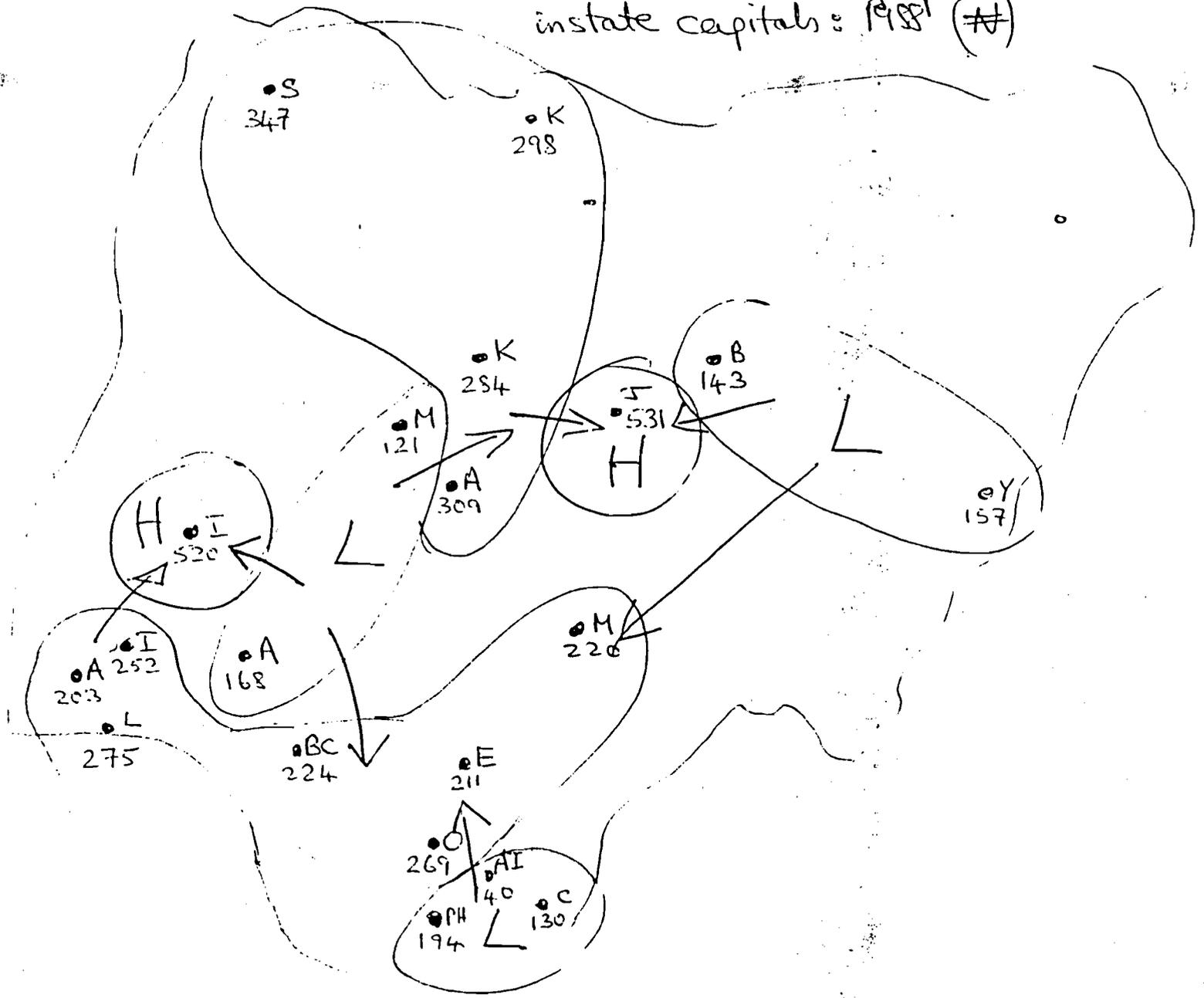


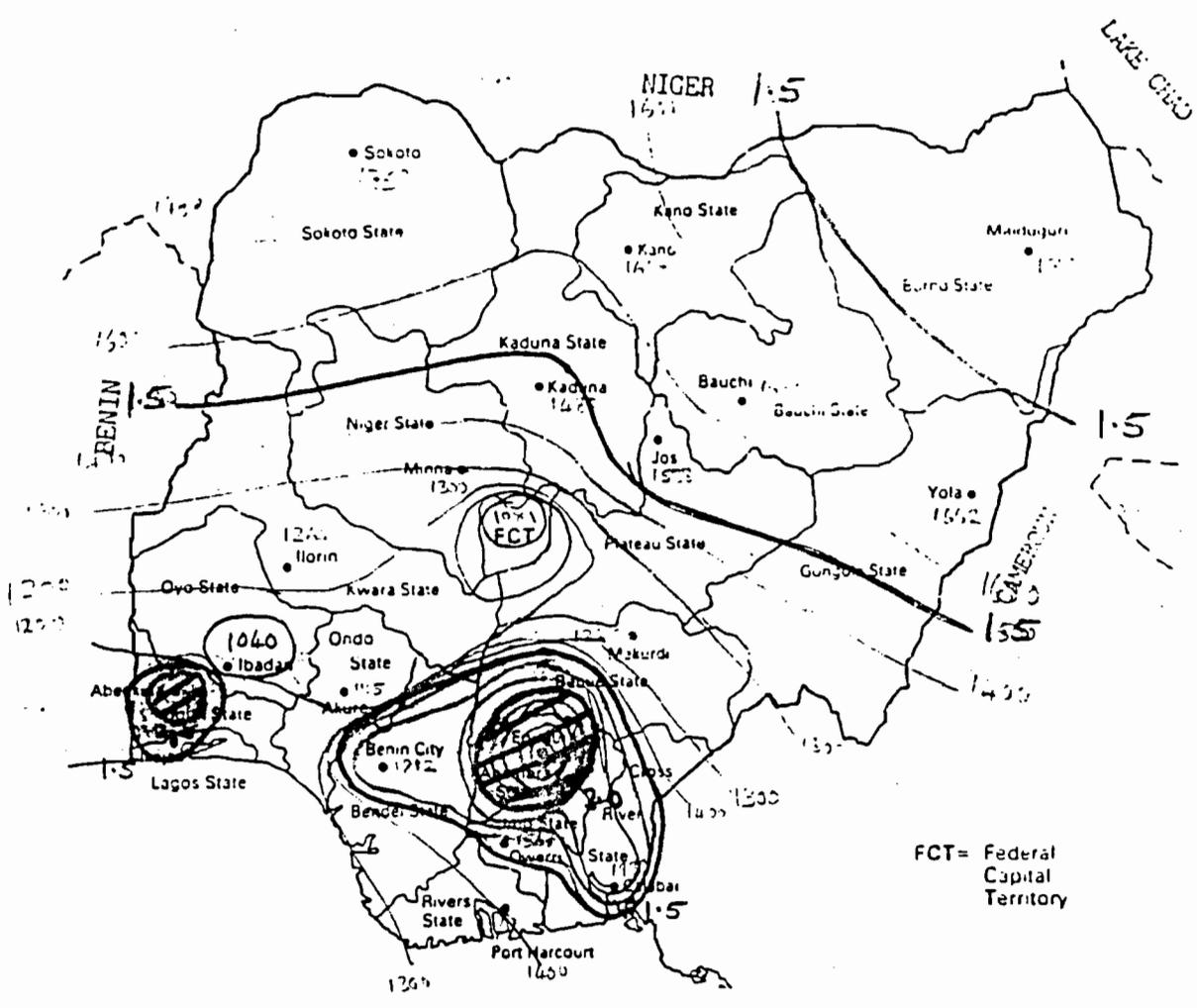
Beef 1988  
#/kg

FCT = Federal  
Capital  
Territory

Rans: annual average prices  
instate capitals: 1988 (#)

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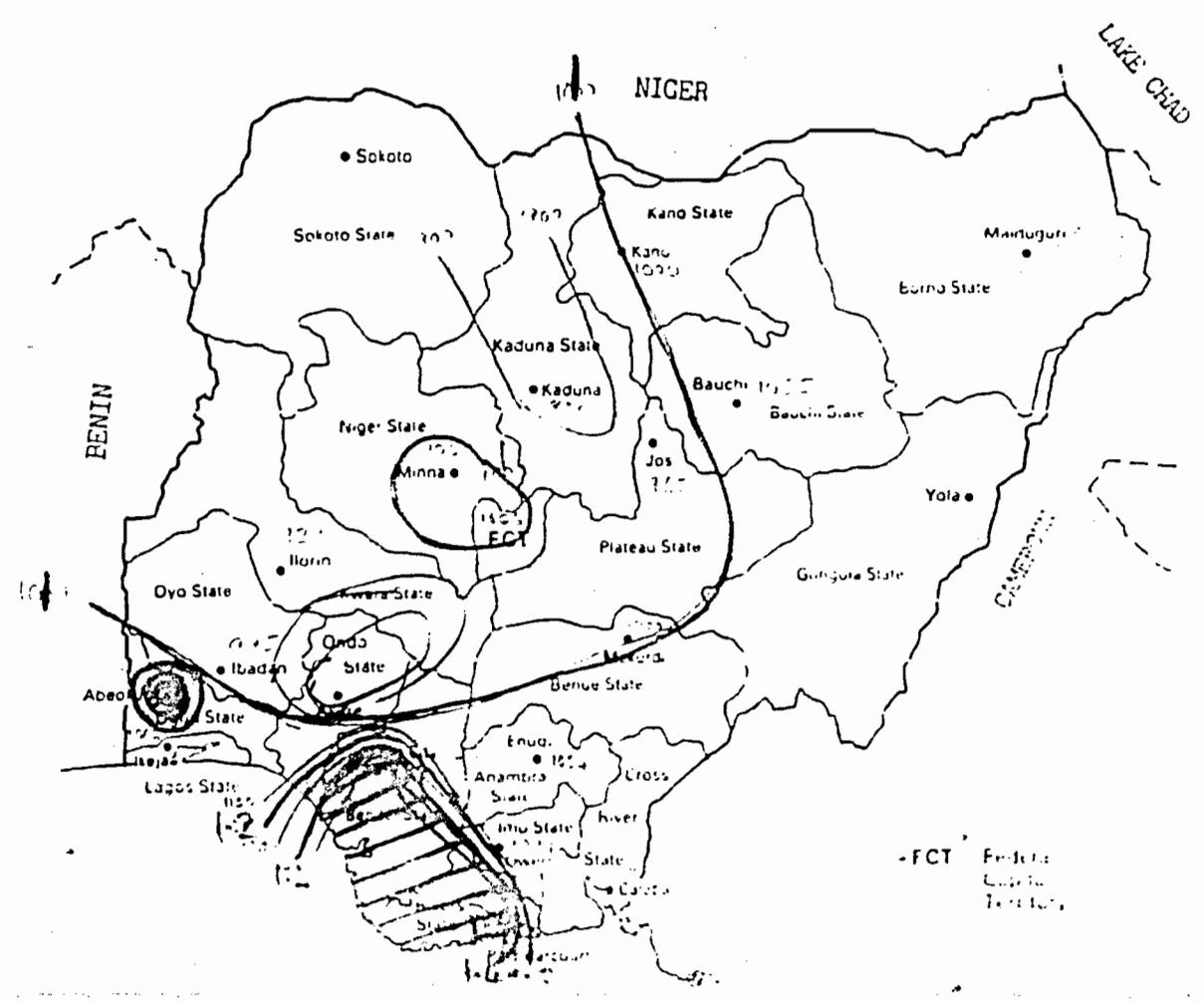




Bull  
1000#  
part head  
1987  
10/22/82

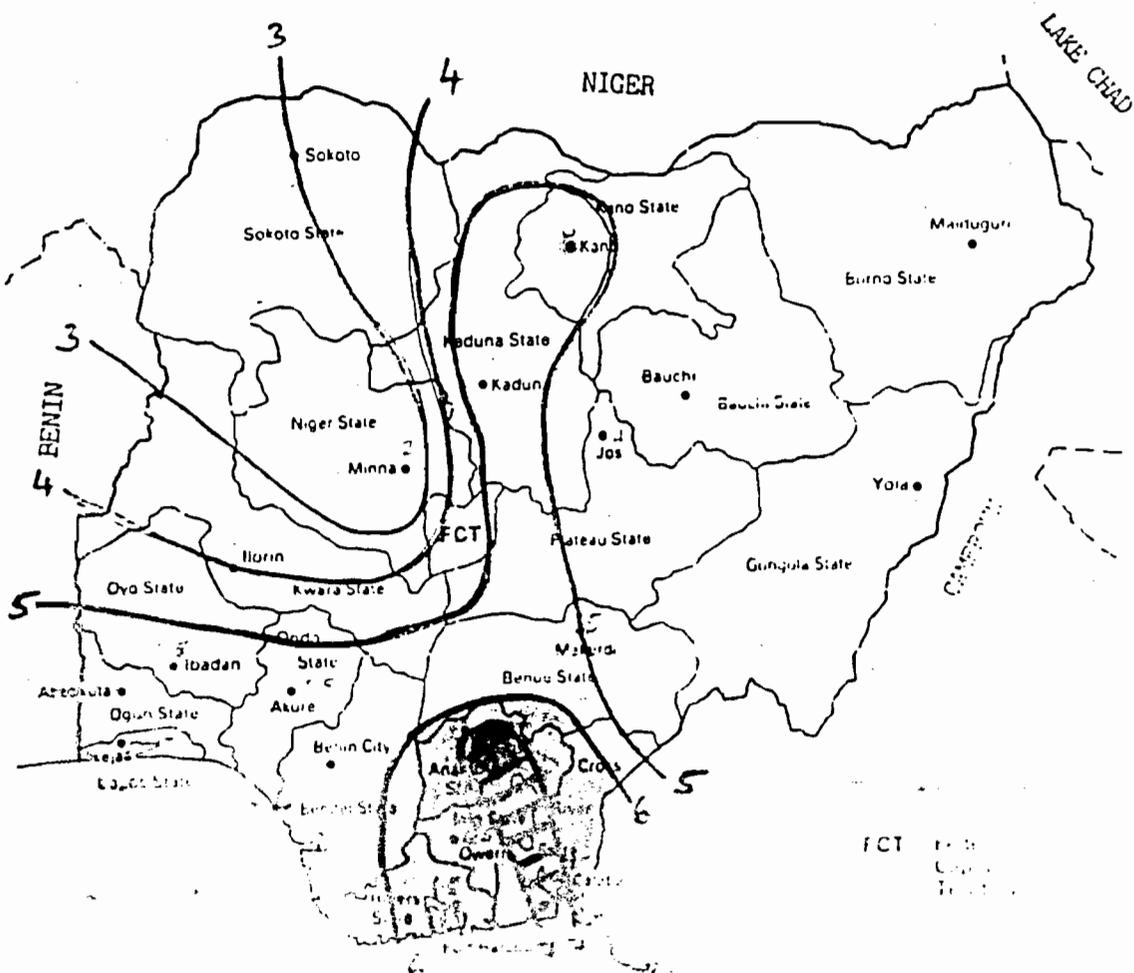
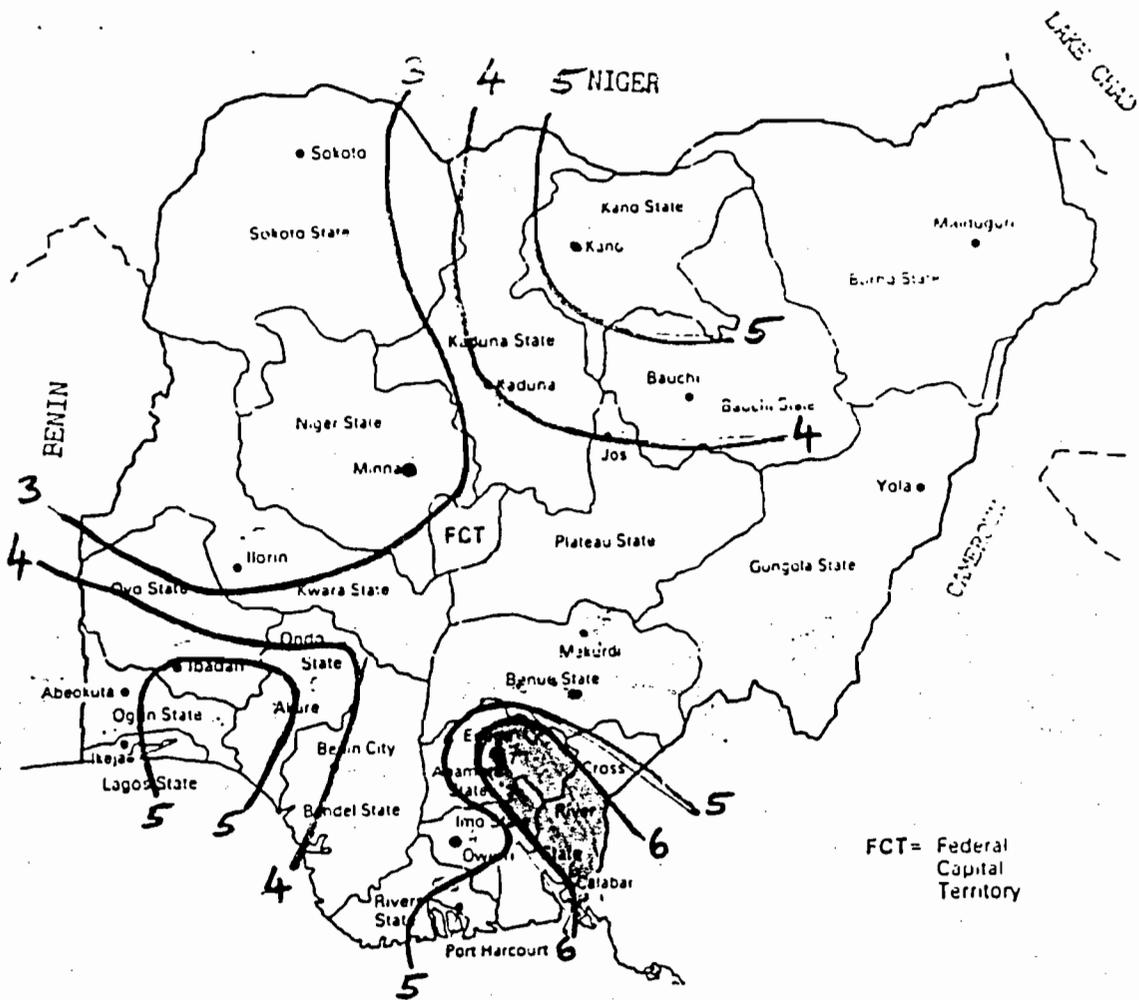
FCT = Federal  
Capital  
Territory

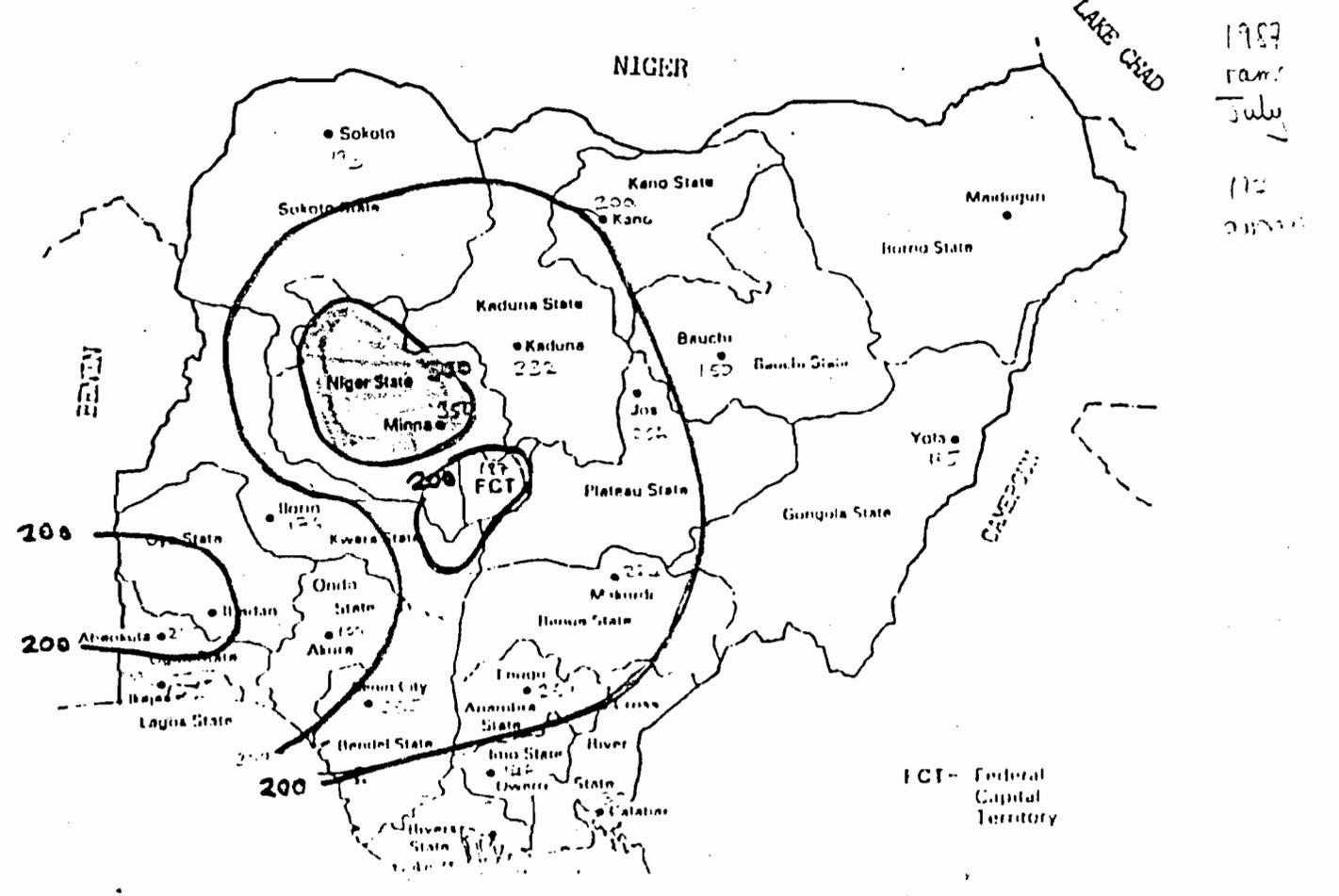
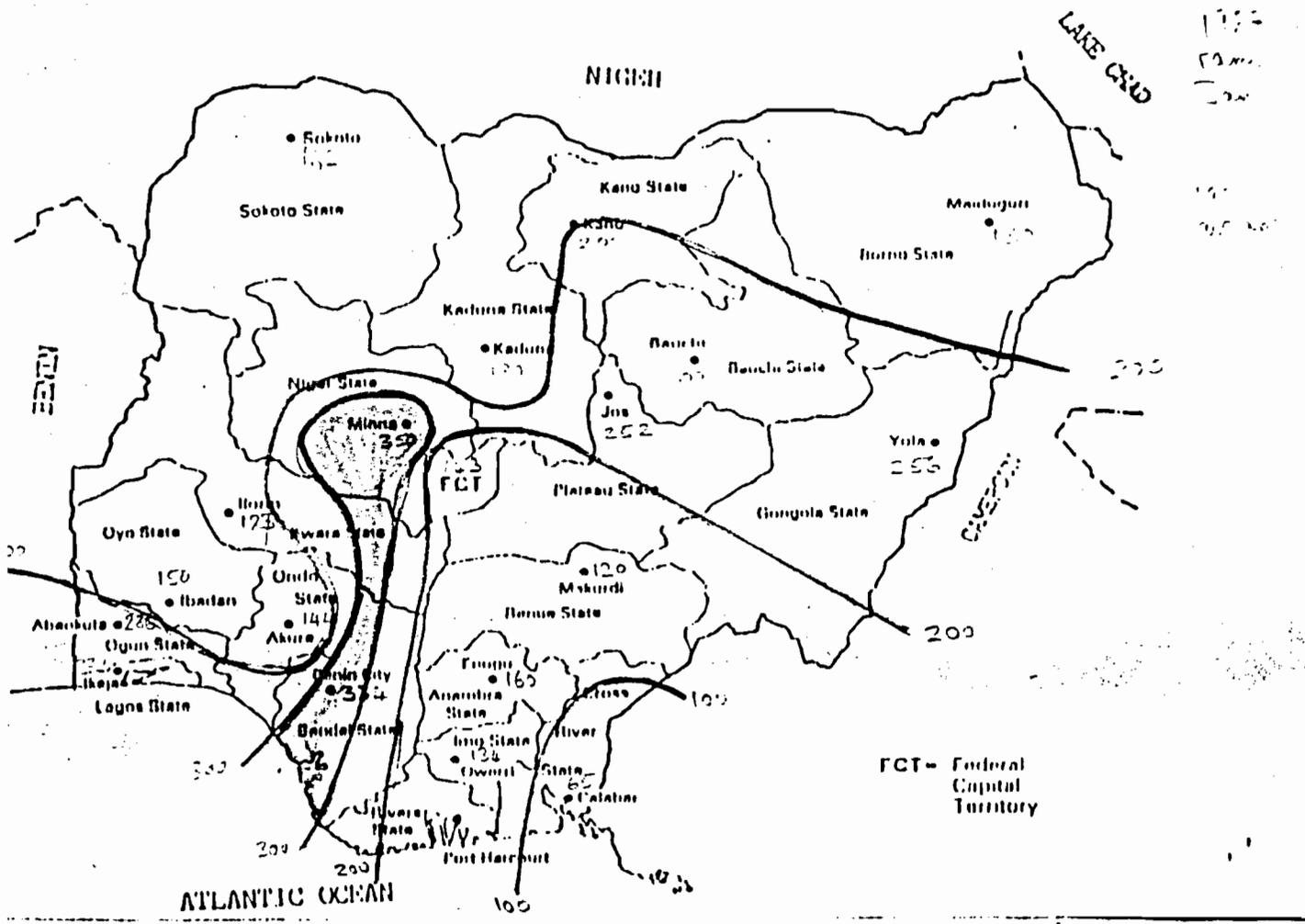
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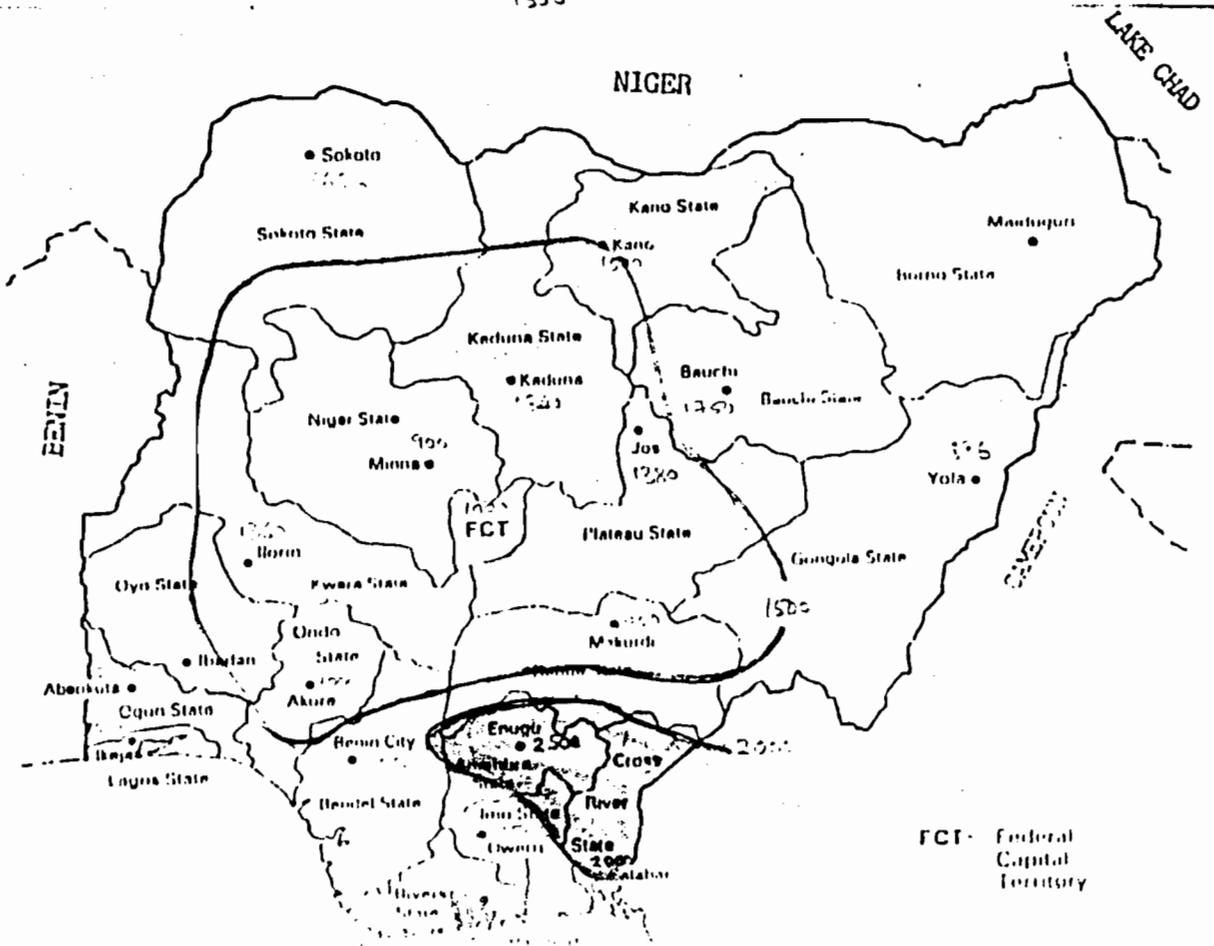
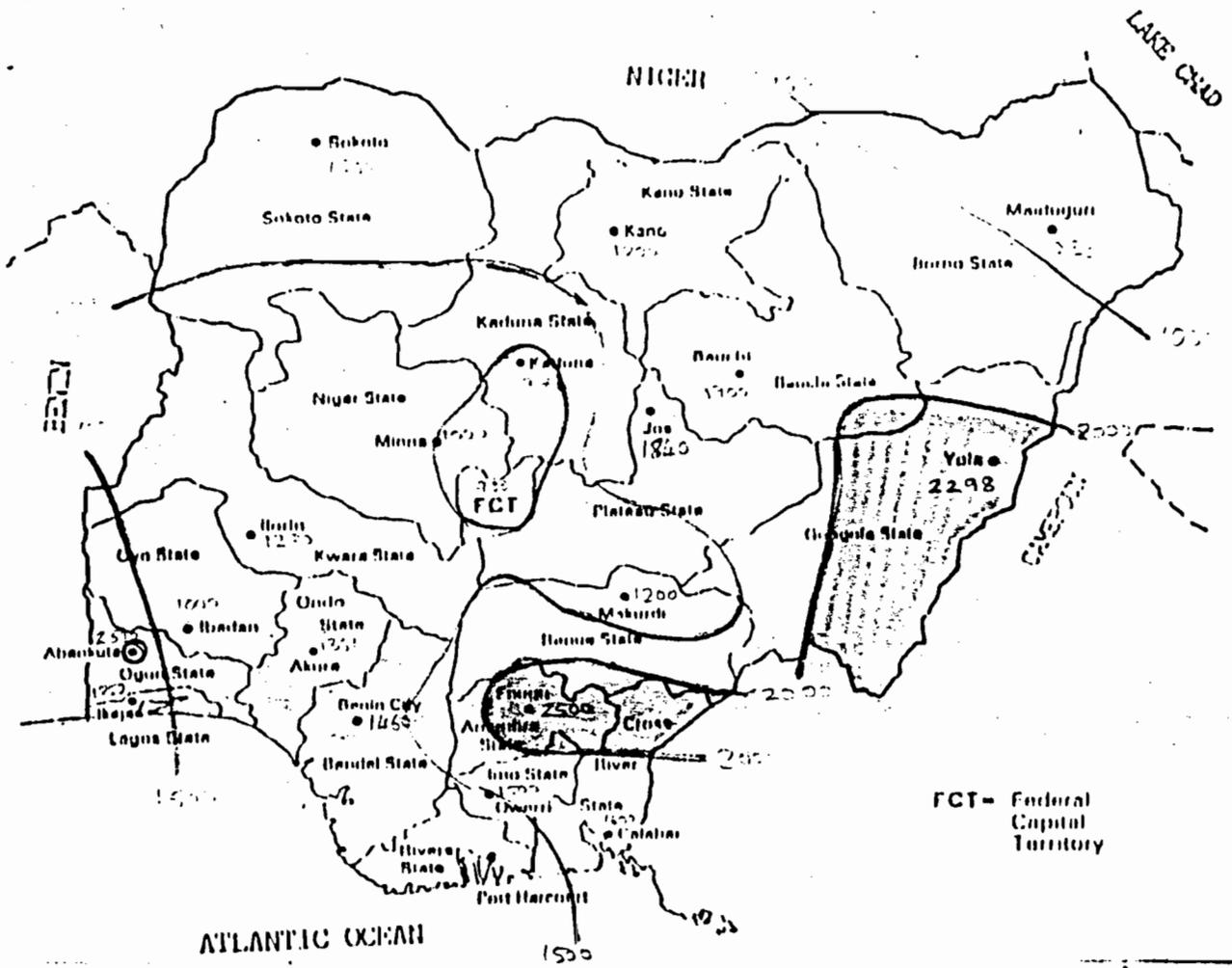
Beef  
1987  
10/22/82

FCT = Federal  
Capital  
Territory





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Coût de Revient du Kilogramme Carcasse viande Bovine à l'Exportation

Désignation	Moyen de Transport			
	Avion		Camion	
	1ère Hypothèse	2ème Hypothèse	1ère Hypothèse	2ème Hypothèse
Prix d'achat du kg vif	260	300	260	300
Rendement	46%	46%	46%	46%
Prix d'achat du kg carcasse	565	652	565	652
Taxe Abattoir par kg	20	20	20	20
Ressuage 6,25%	35	41	35	41
Saisie 1%	6	6	6	6
Emballage	20	20	20	20
<b>Coût du kg sorti Abattoir</b>	<b>646</b>	<b>739</b>	<b>646</b>	<b>739</b>
Transport Abattoir-Aéroport	10	10	-	-
Frais de la Pallétisation Aéroport	10	10	-	-
Douanes (base 500F FOB) 3%	15	15	15	15
Transit et Manutention	14	14	14	14
<b>Coût du kg FOB aéroport de</b>	<b>695</b>	<b>788</b>	<b>675</b>	<b>768</b>
Prix de vente avec marge de 2%	709	804	688	783
" " " de 5%	730	827	709	806
" " " de 10%	765	867	743	845
" " " de 15%	799	906	776	883
" " " de 20%	834	946	810	922

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SNERAN  
August 1957

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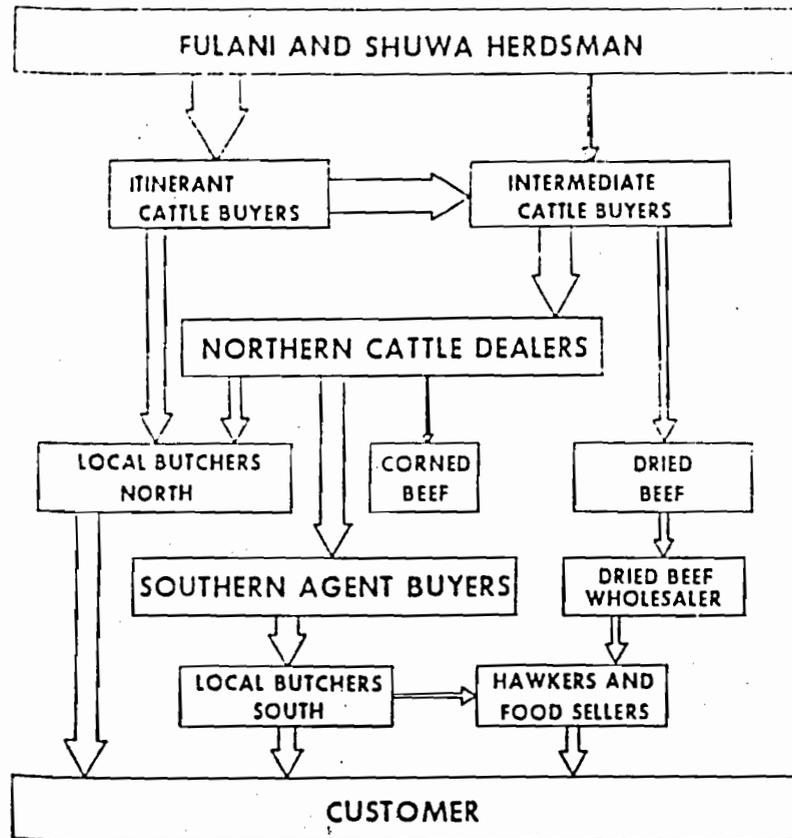
Appendix 5

SONERAN cost worksheet  
for meat exports: August 1989



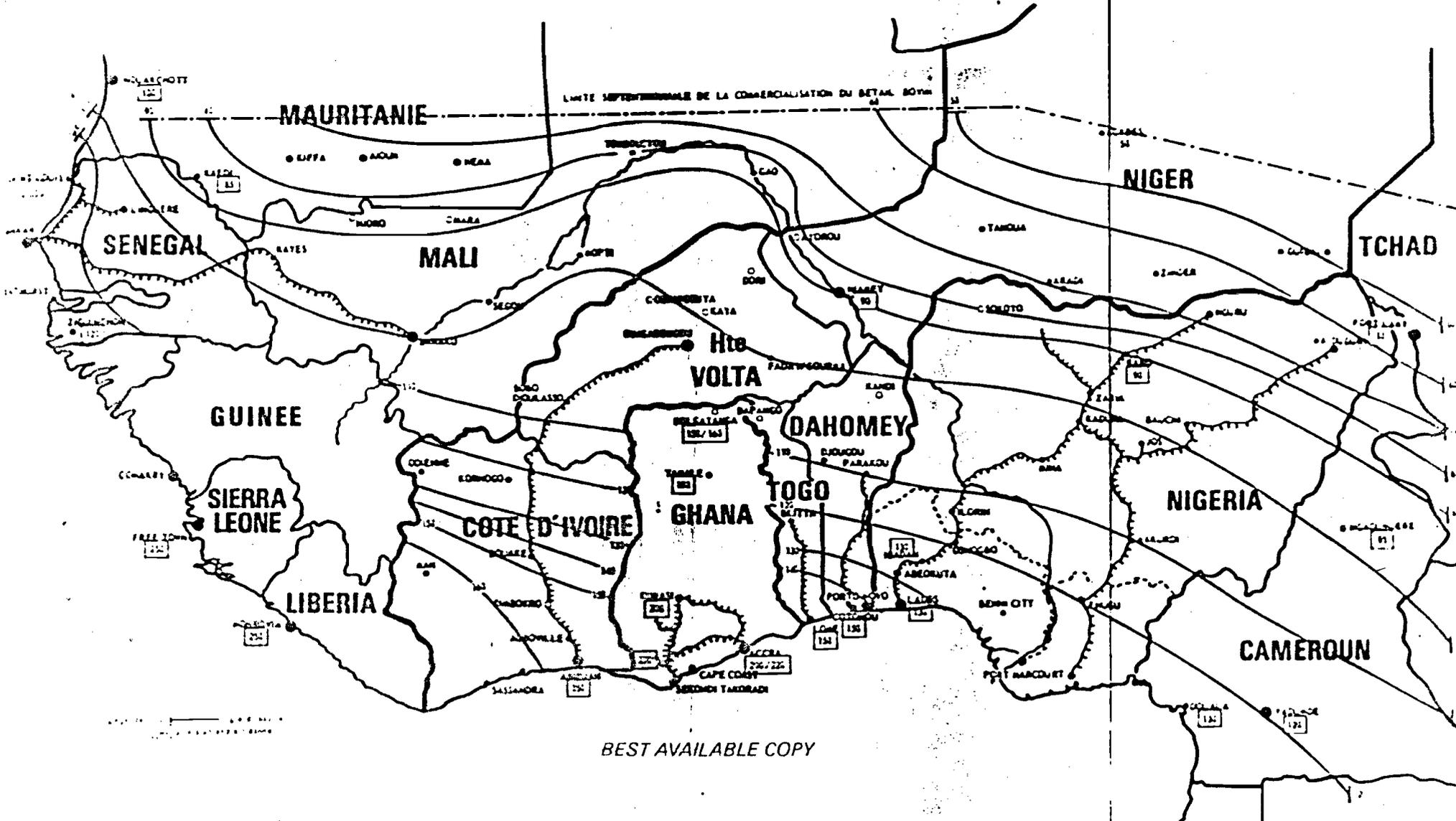
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Figure 2. Nigeria: The marketing pattern for beef. In 1964-65, 600,000 head were marketed. Width of arrows indicates the relative proportions that passed through each segment of the marketing patterns.

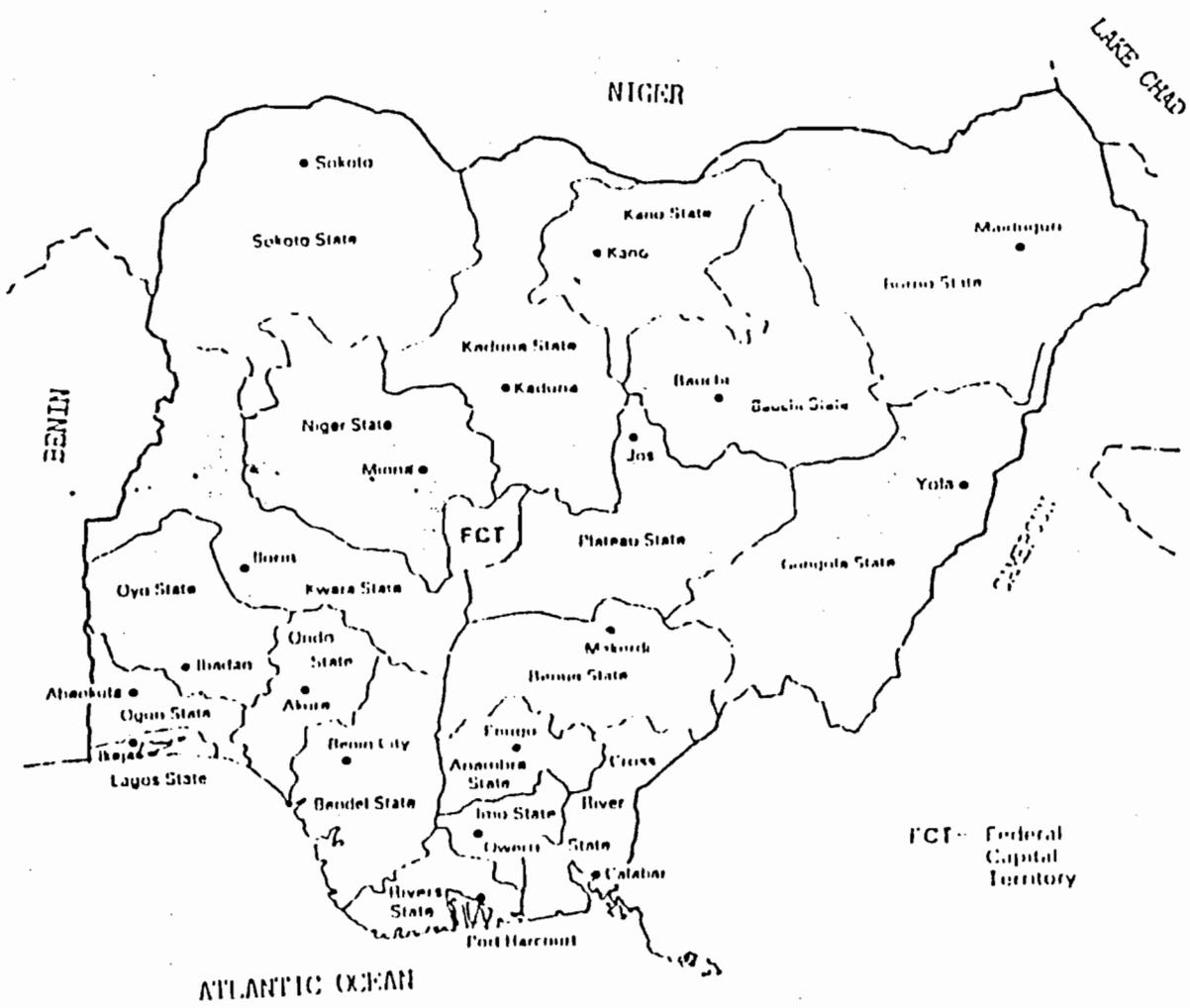


**CARTE N°4**  
**ISOPRIX DU BETAIL BOVIN**

Prix exprimés en francs cfa par kilogramme net au pied pour des animaux "exportation" en 1967.

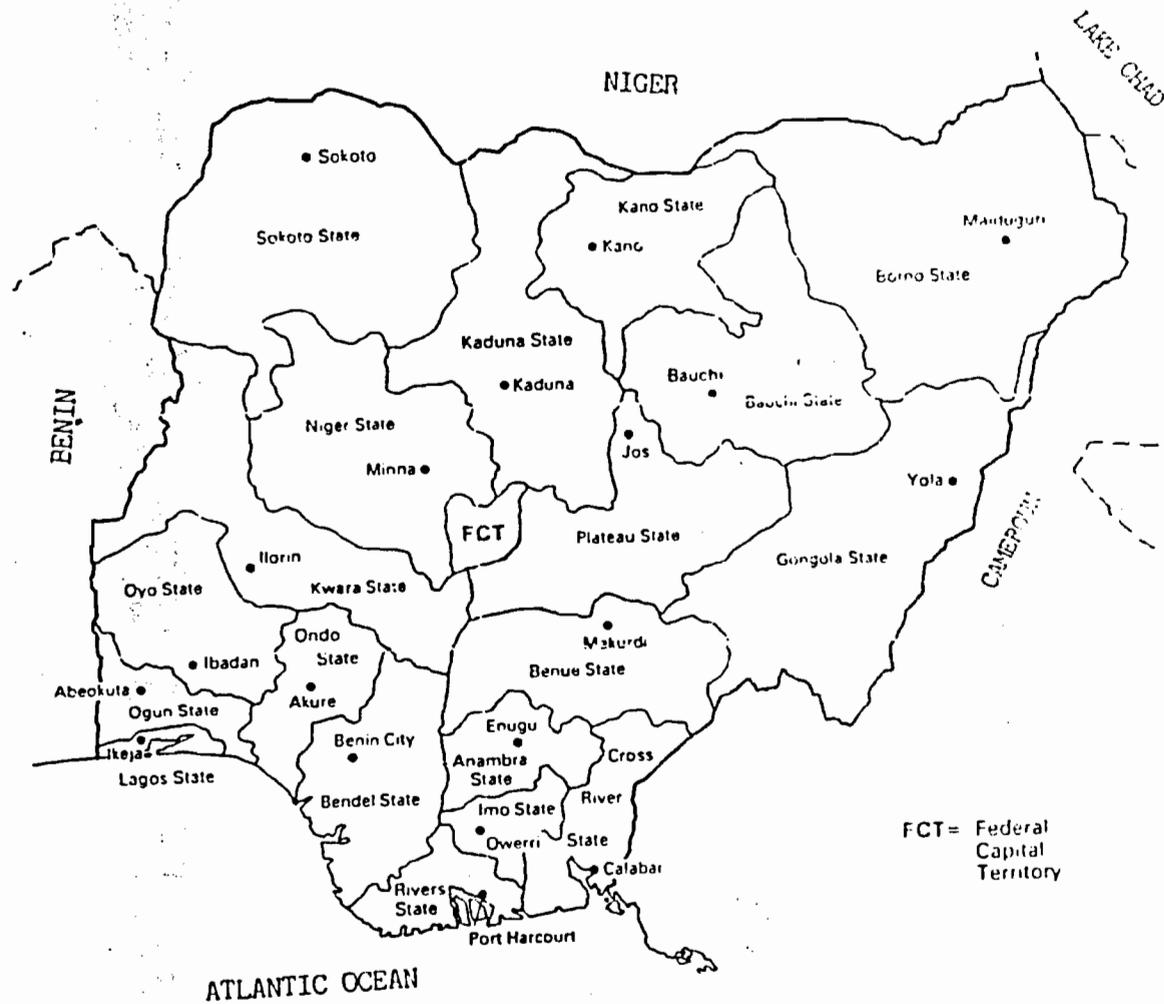


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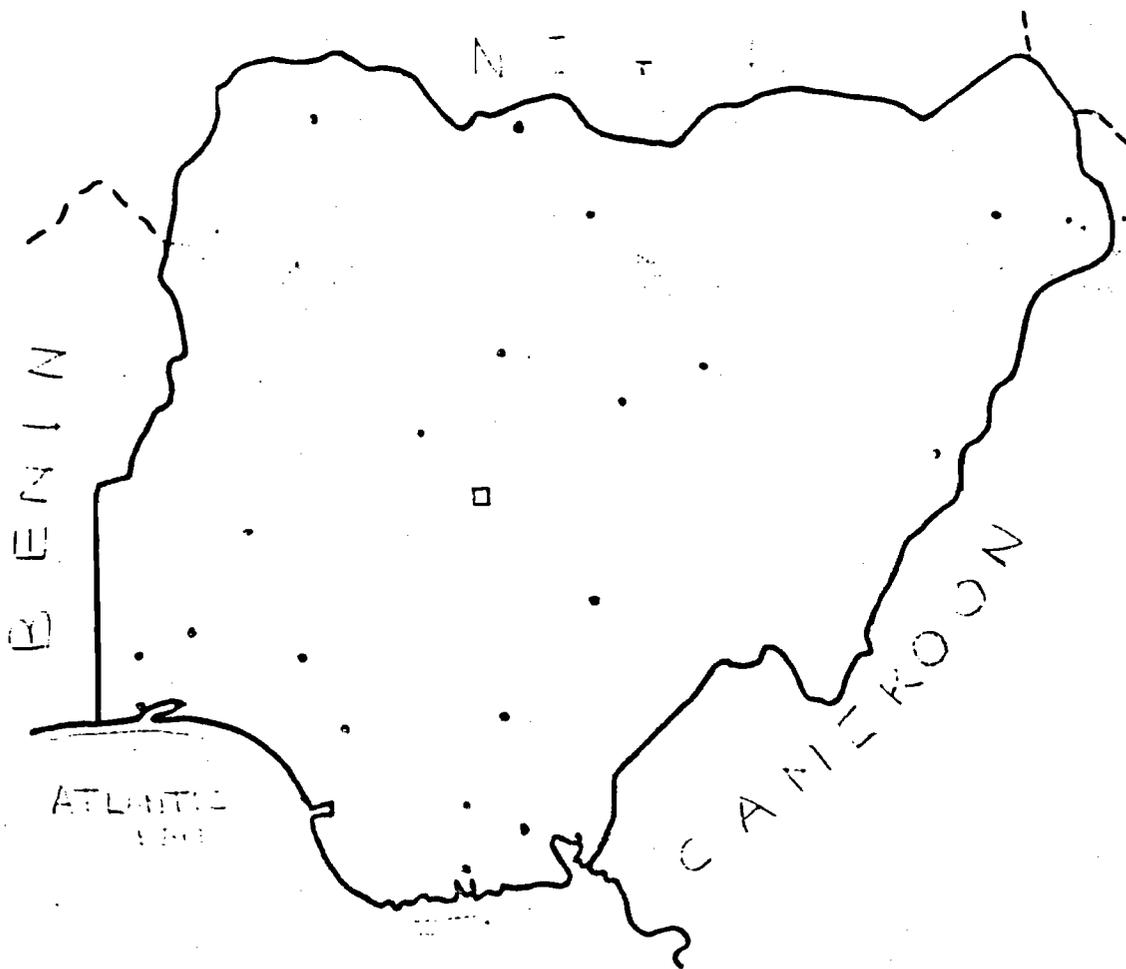
FCT - Federal Capital Territory

BEST AVAILABLE COPY

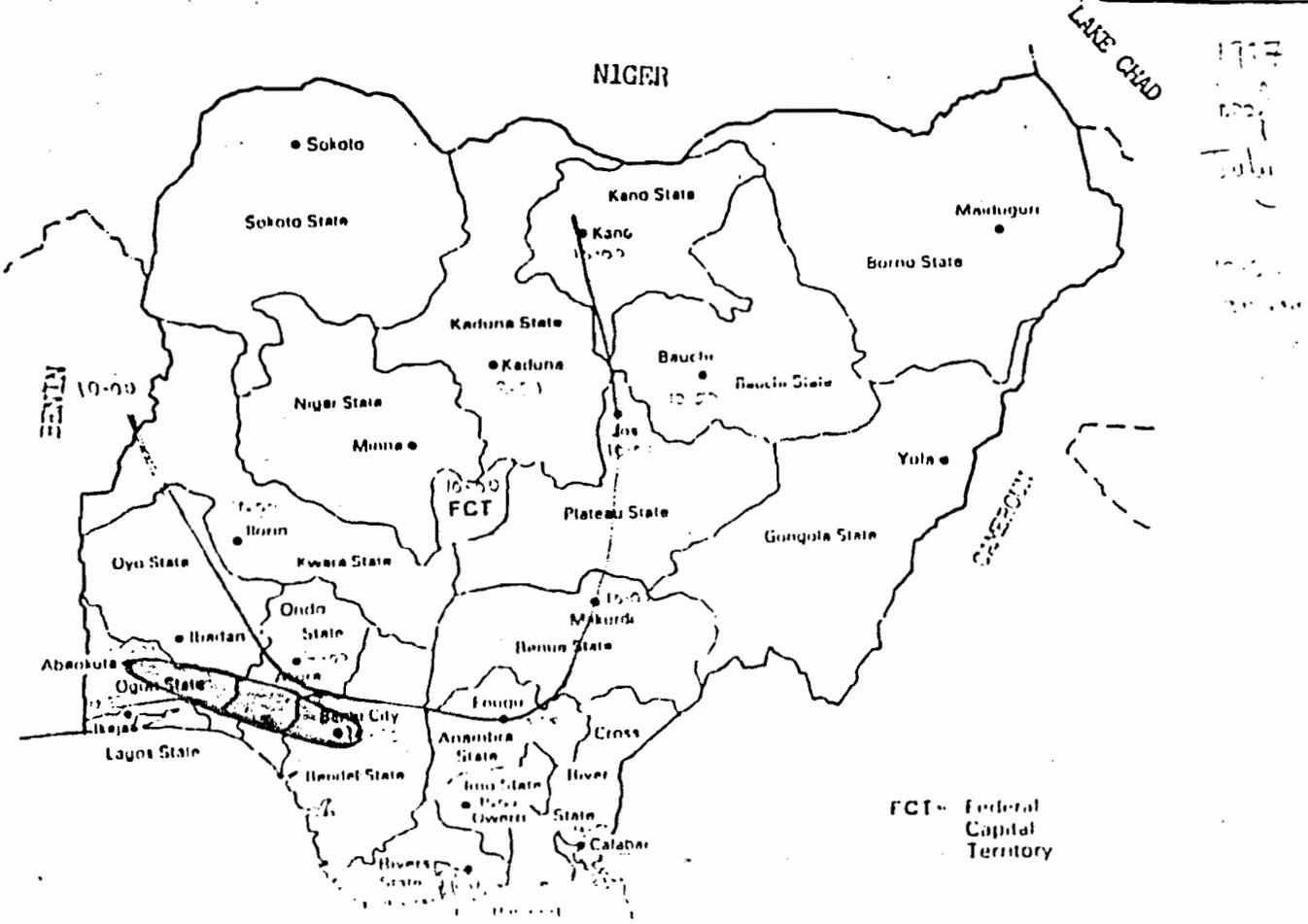
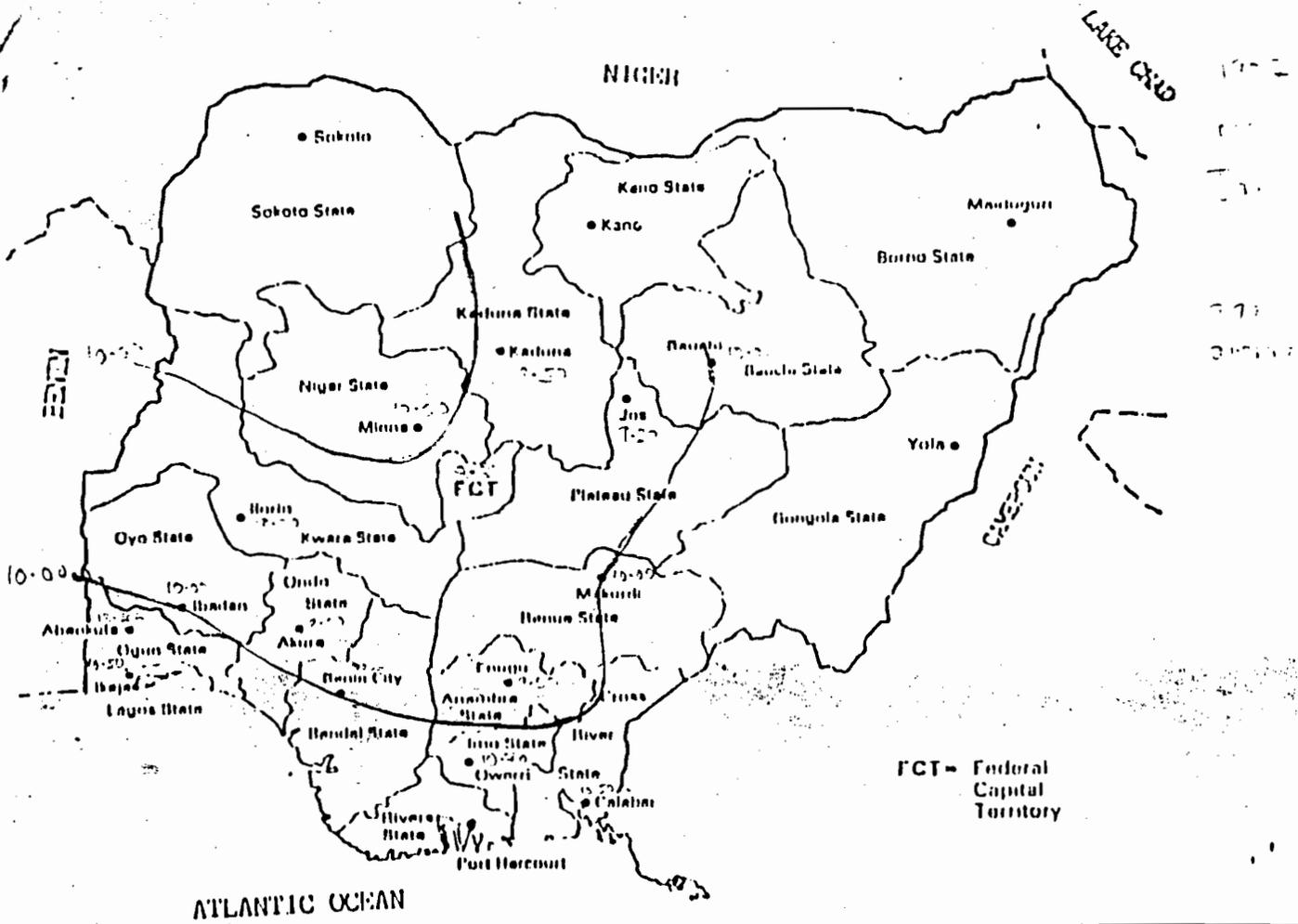


FCT= Federal Capital Territory

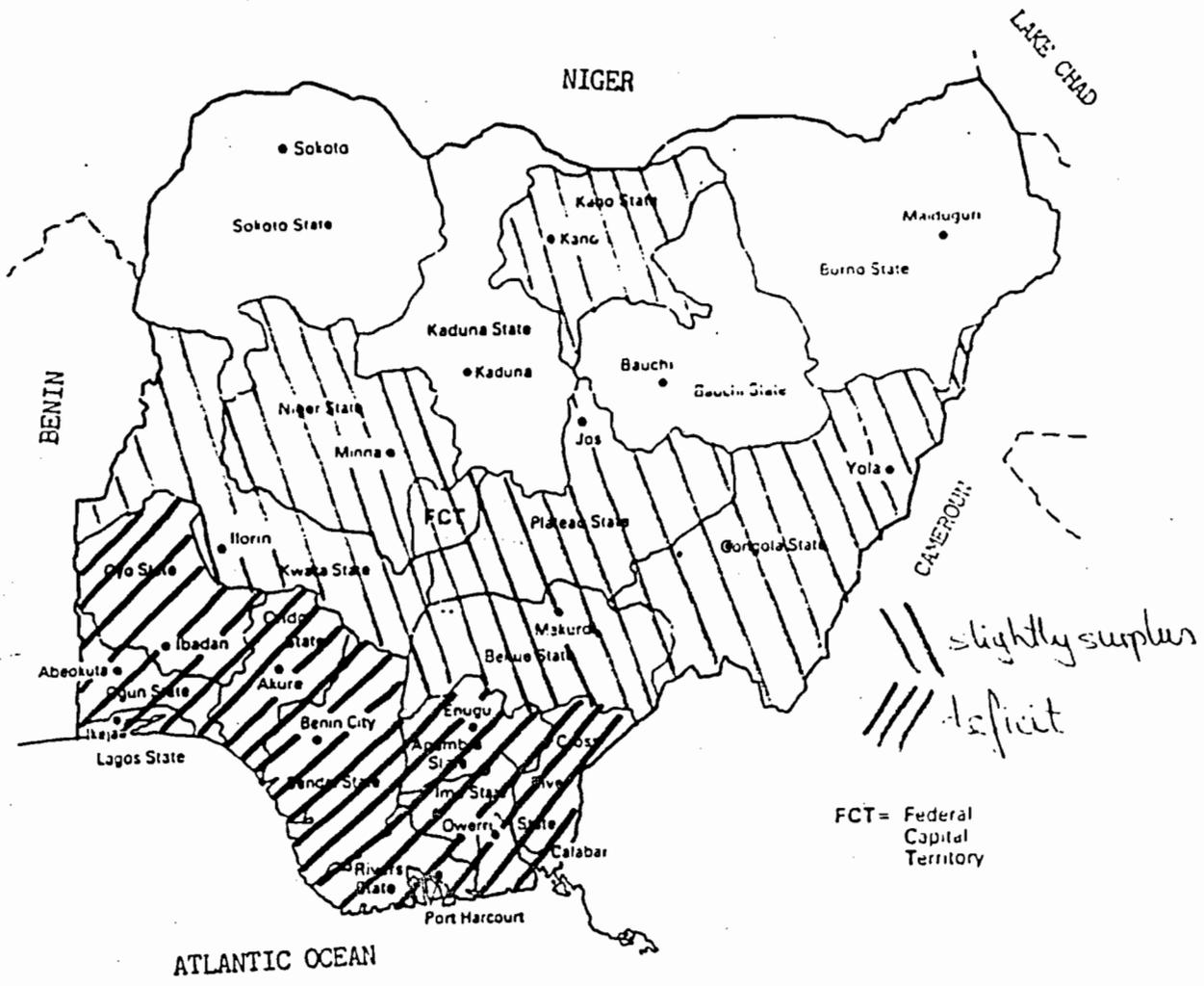
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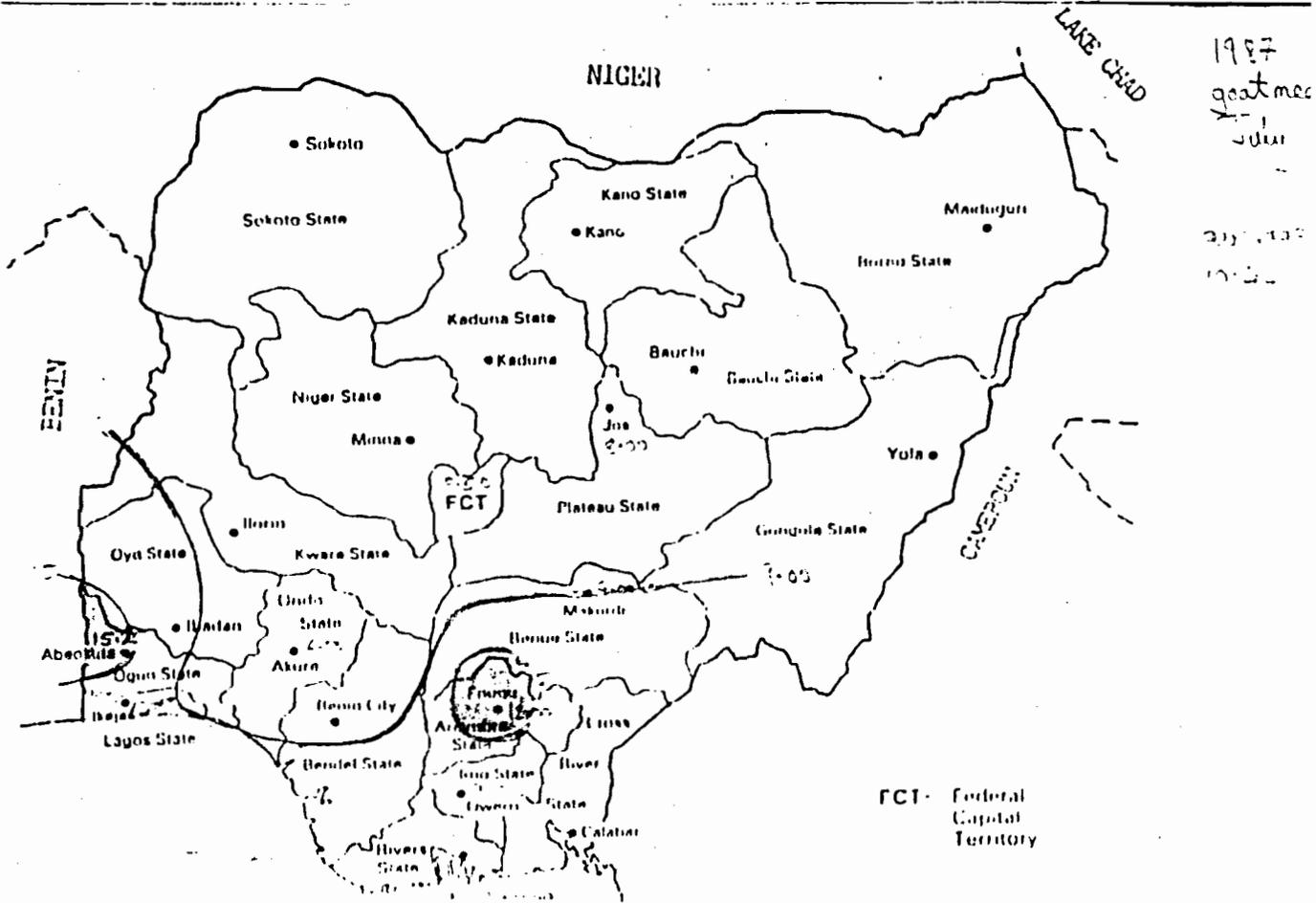
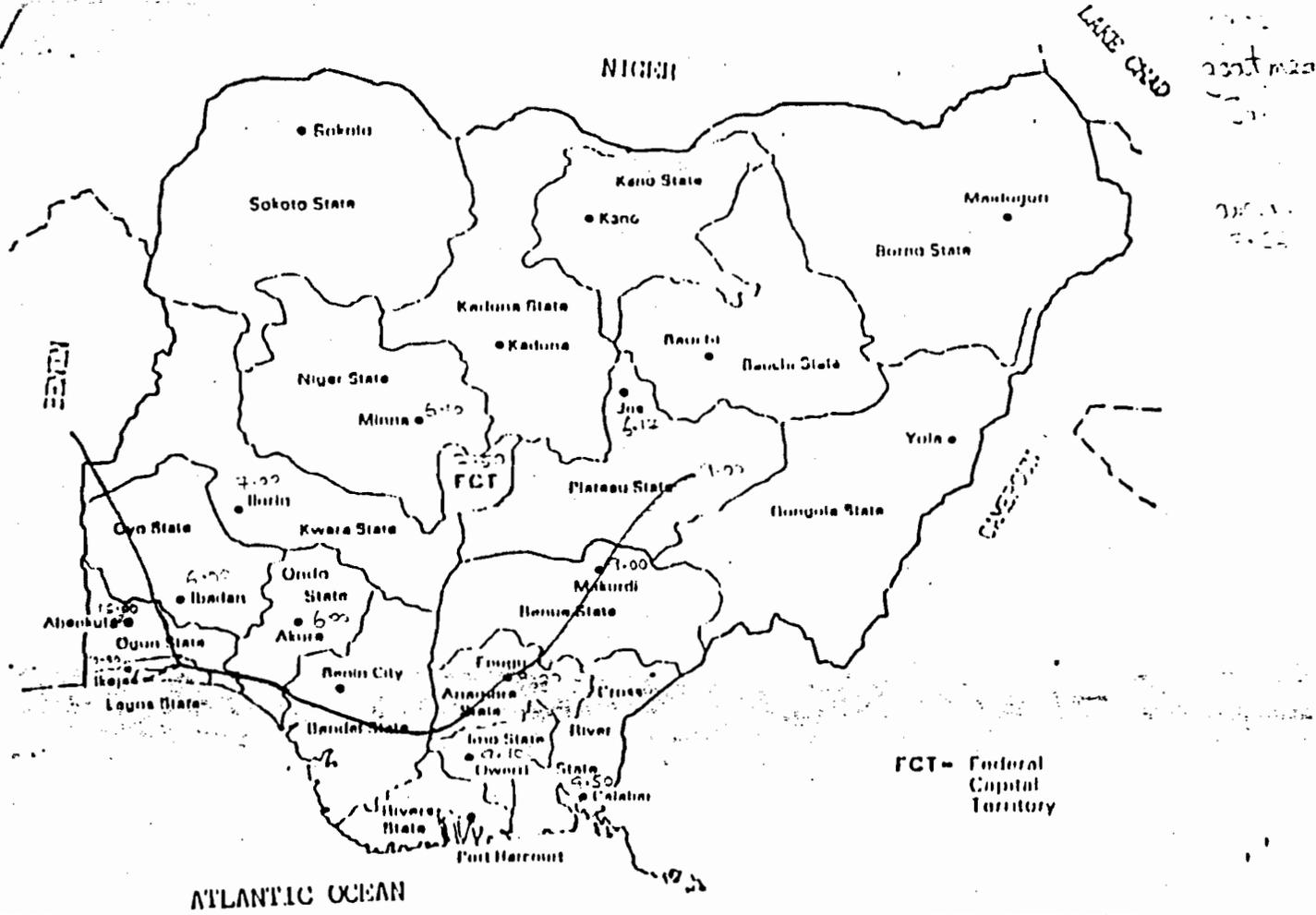


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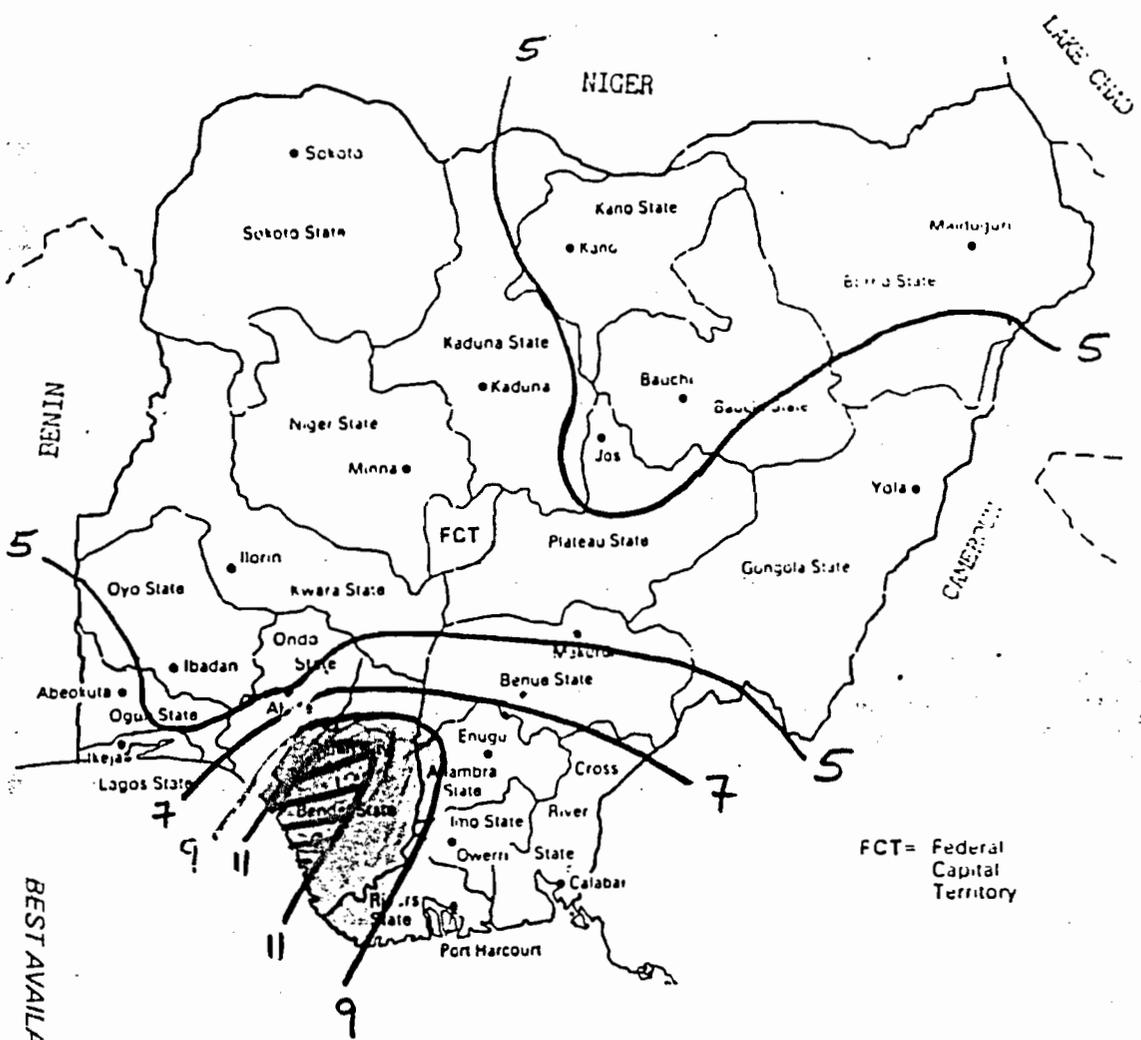


// slightly surplus  
 /// deficit

FCT = Federal Capital Territory

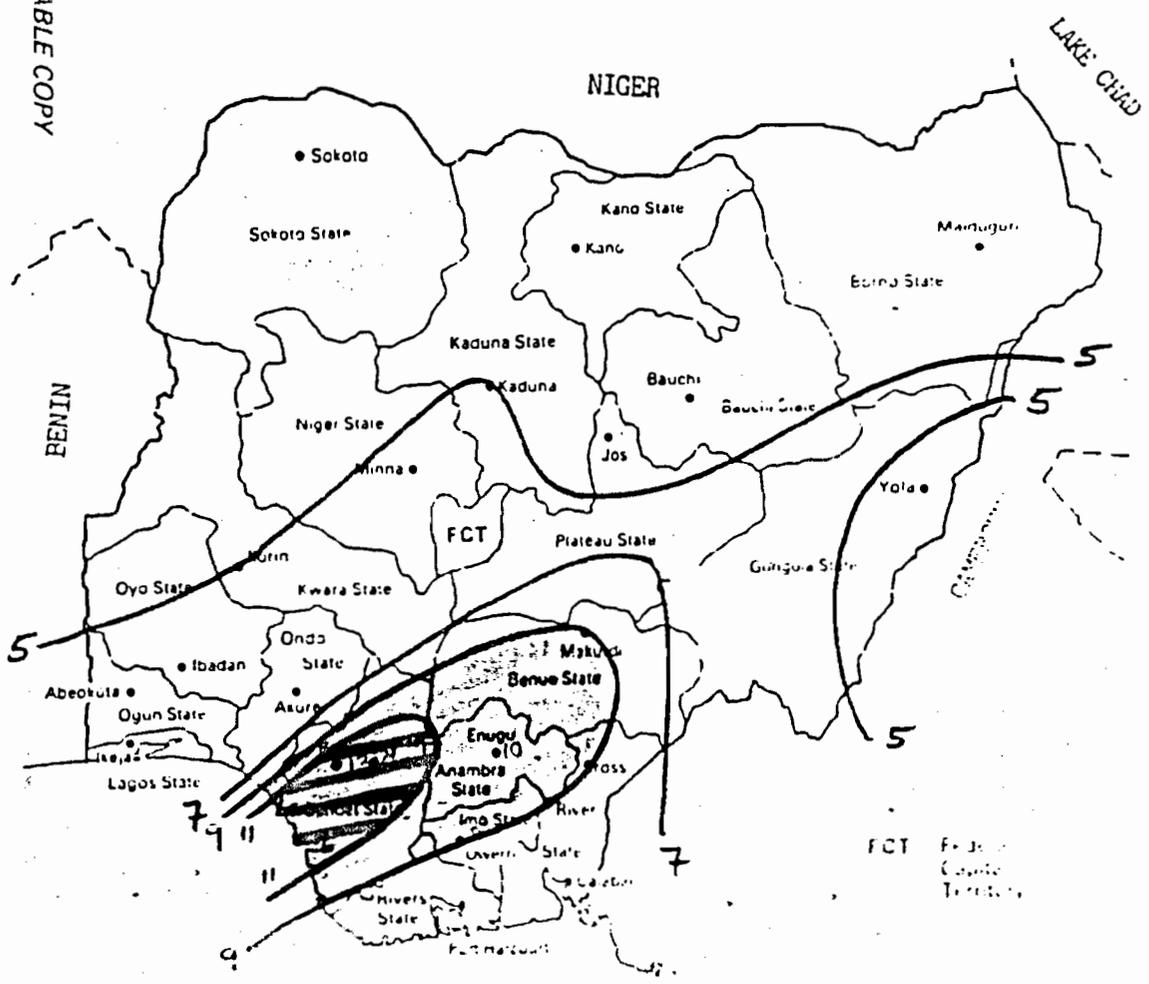


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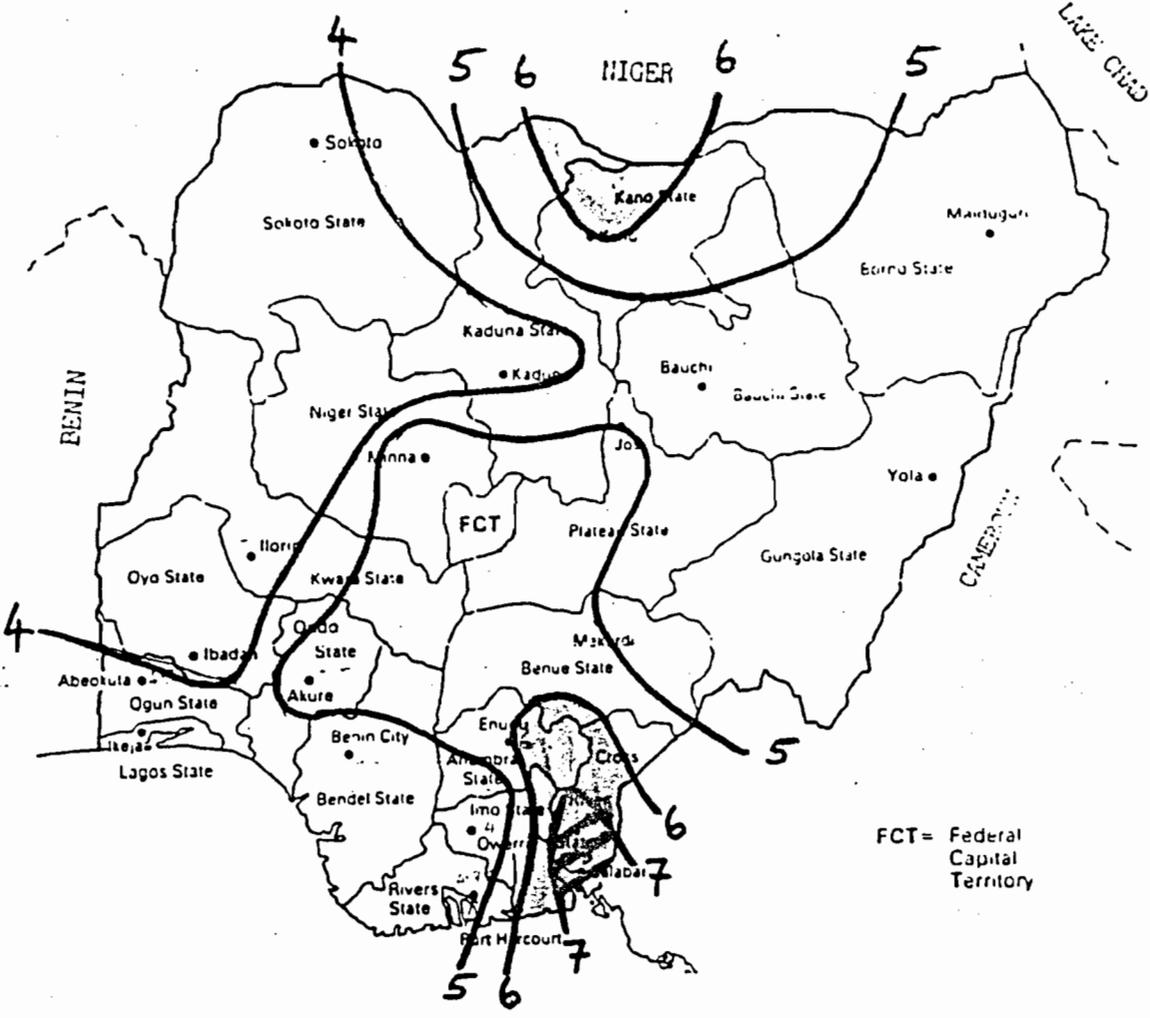


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FCT = Federal Capital Territory

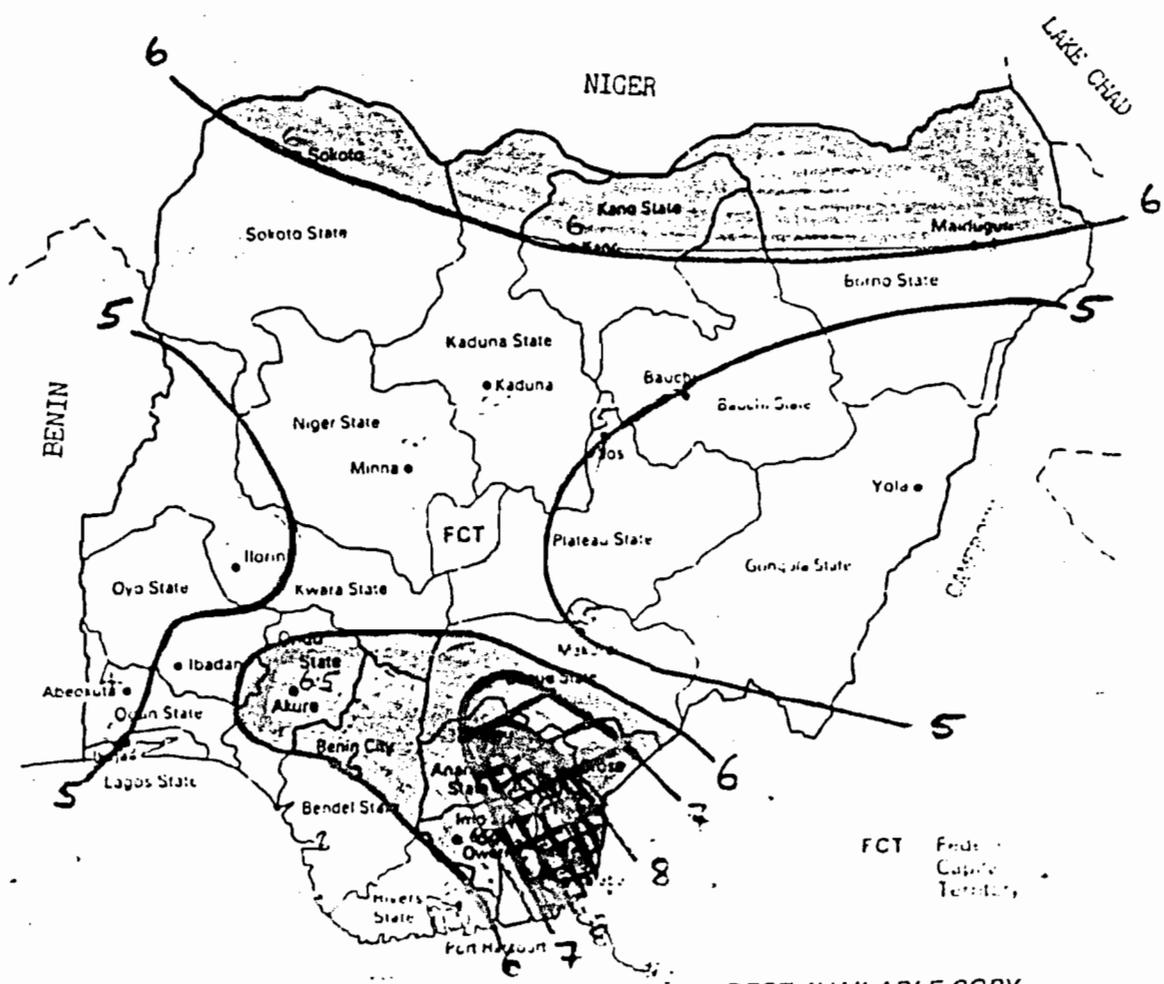


FCT = Federal Capital Territory



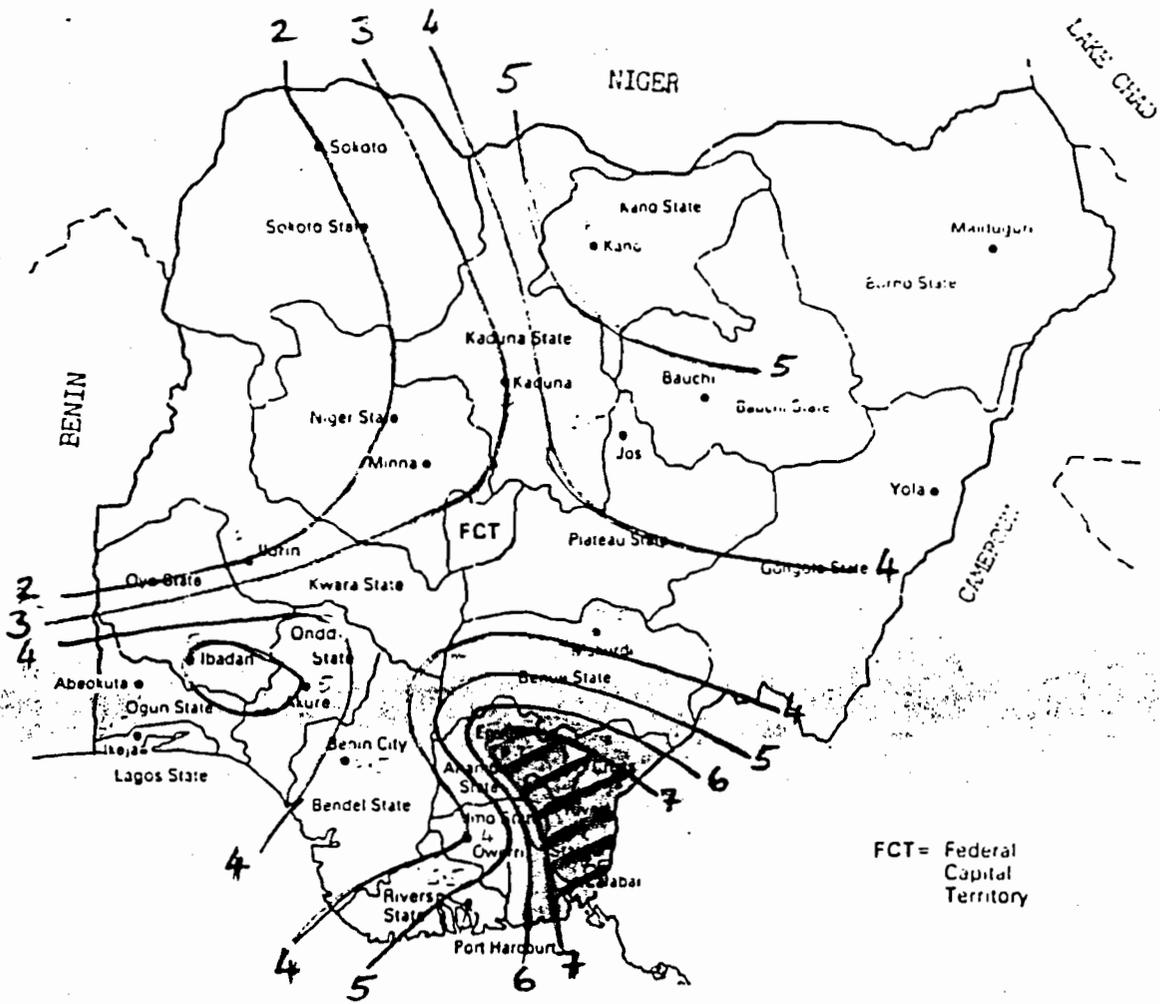
1150  
1000  
100

FCT = Federal Capital Territory

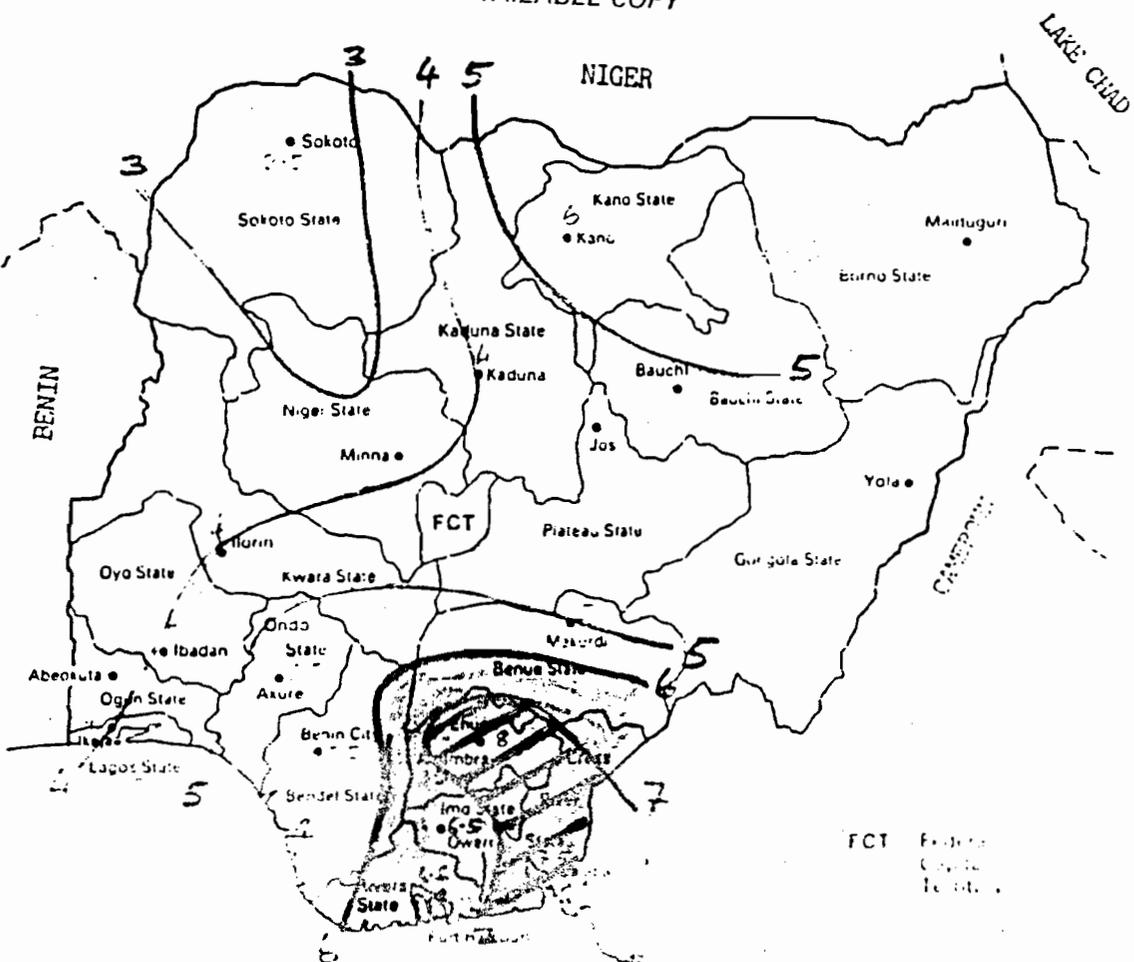


1000  
1000  
1000

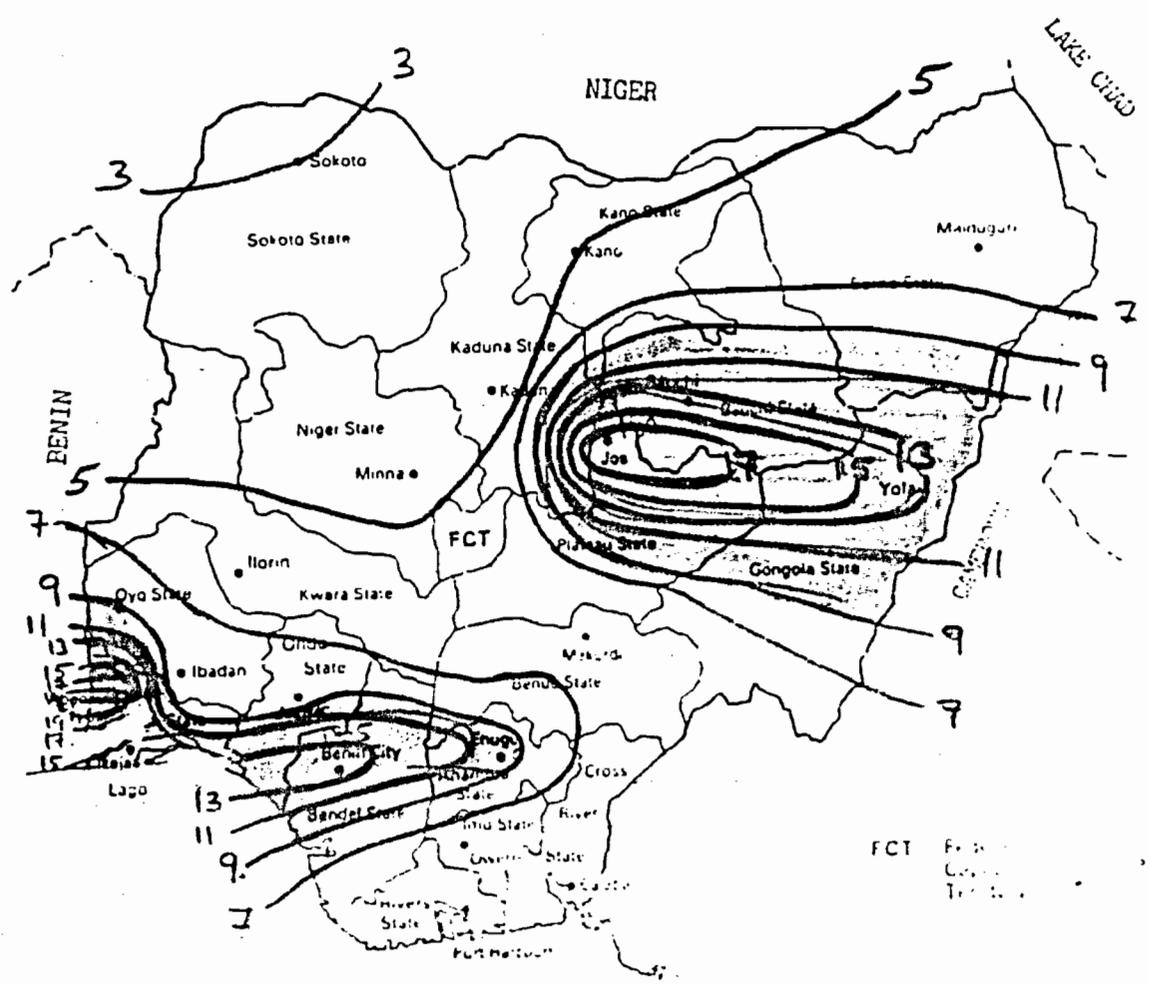
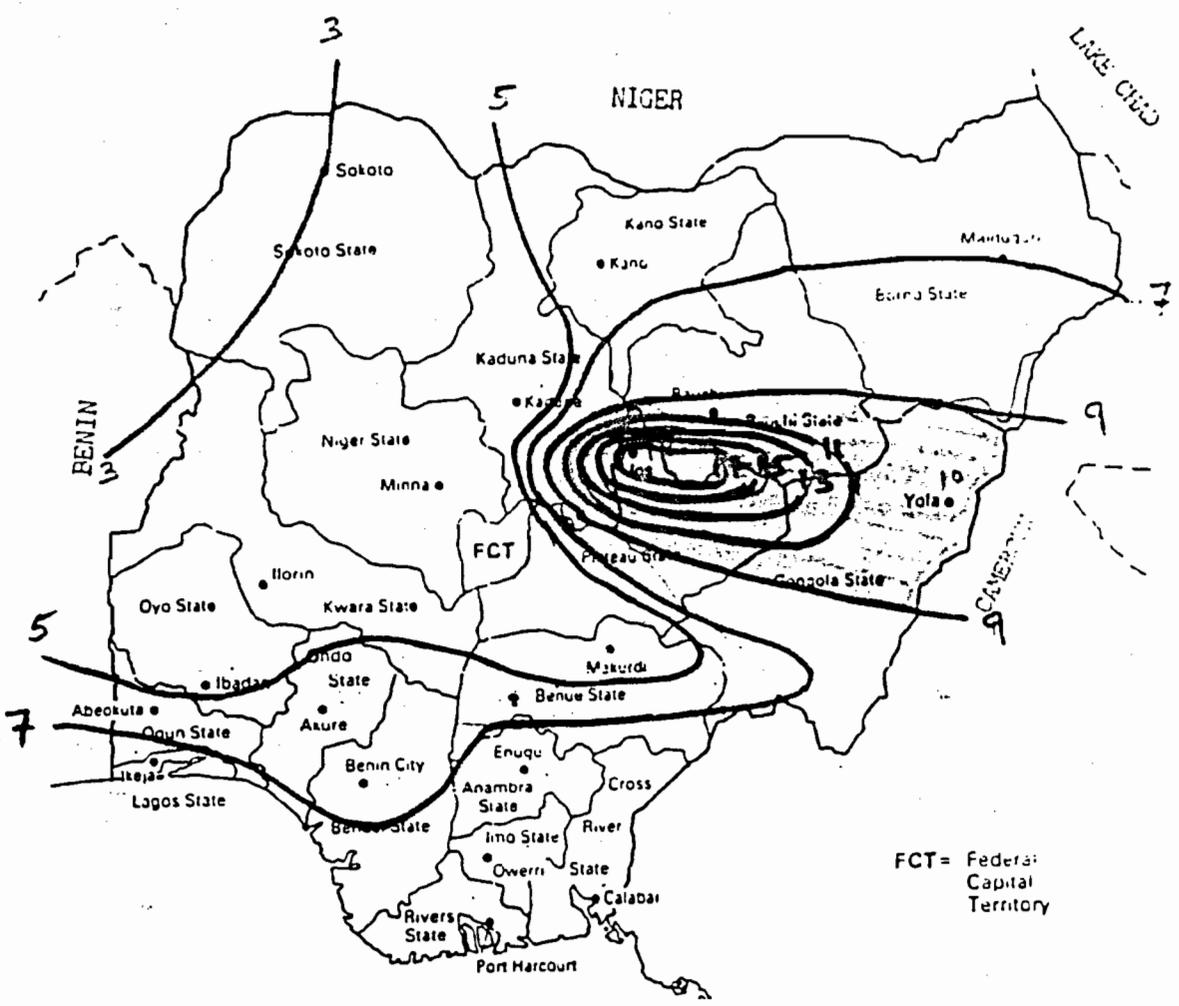
FCT = Federal Capital Territory



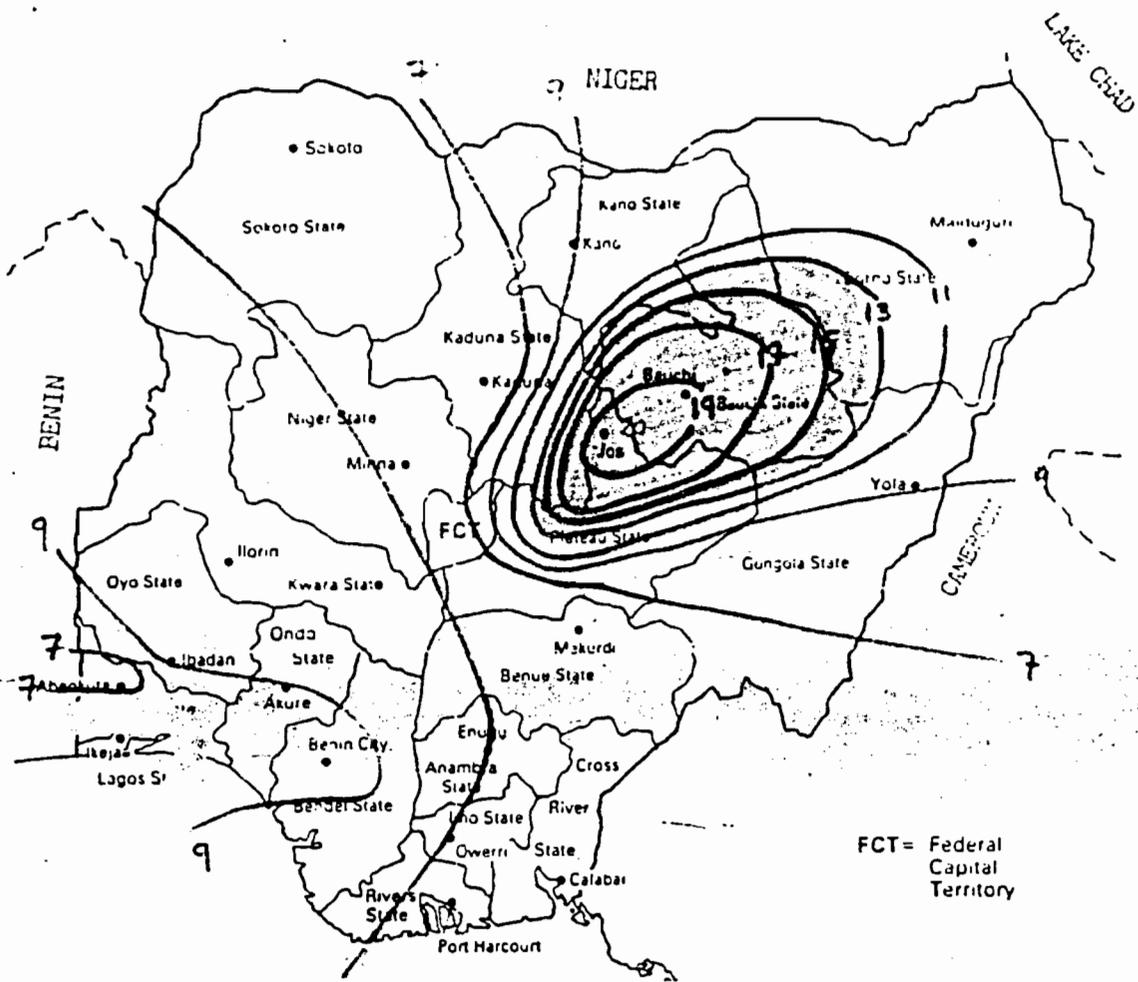
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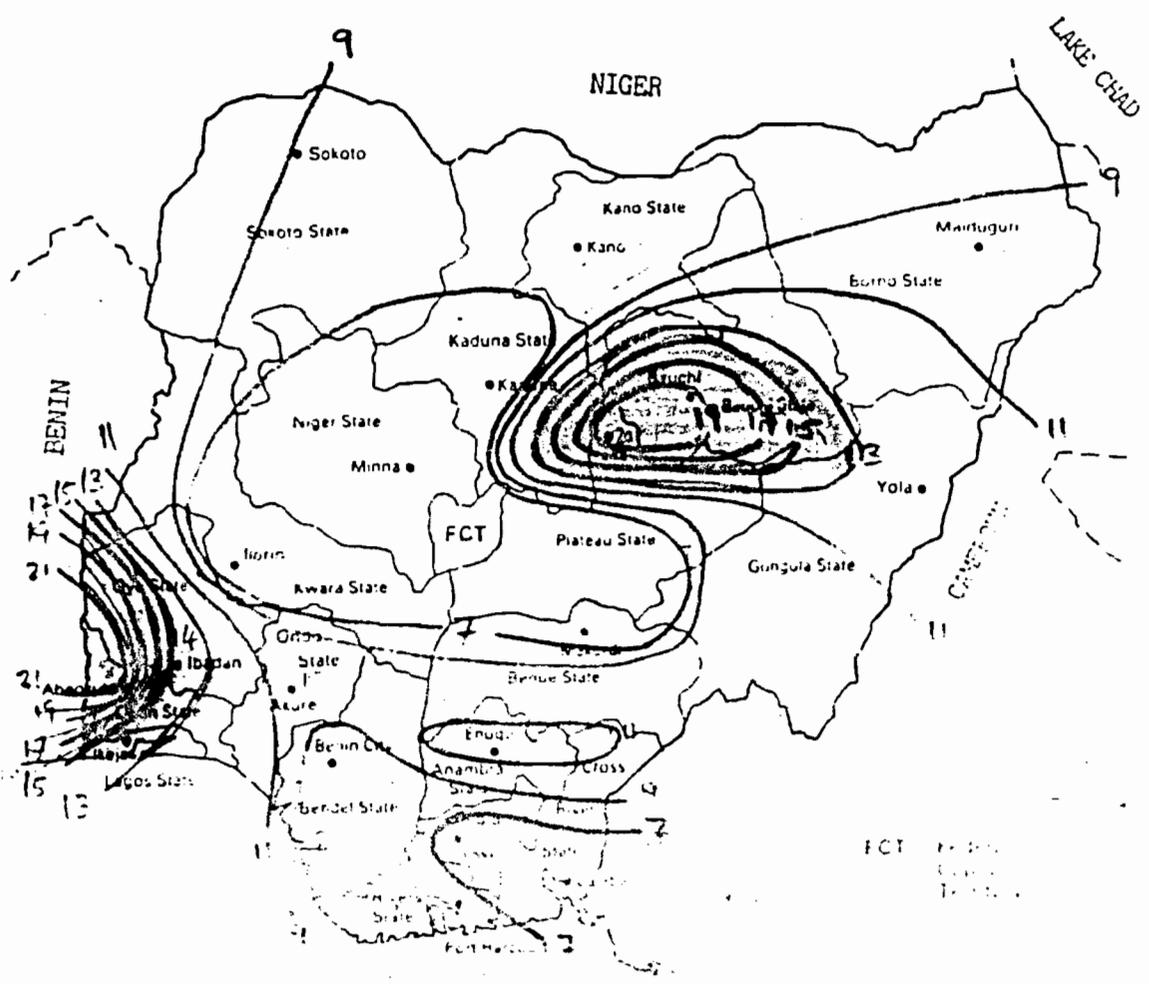
(78) rest map



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FCT = Federal Capital Territory



FCT = Federal Capital Territory