

A GEOGRAPHICAL ANALYSIS OF THE POPULATION AND RURAL ECONOMIC  
DEVELOPMENT IN THE MIDDLE BELT OF NIGERIA: A CASE STUDY FROM  
BIDA AND MINNA DIVISIONS OF NIGER PROVINCE

BY

ENIOLA OLOJUNTOBI ADENIYI, B.A. (HONS.)

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CONTENTS

	<u>Page</u>
List of Tables .. .. .	v
List of Maps and Diagrams .. .. .	vii
Acknowledgement .. .. .	viii
Abstract .. .. .	x

CHAPTER

1	<u>THE PHYSICAL AND HUMAN ENVIRONMENT</u> .. .. .	1
	The Nigerian Middle Belt .. .. .	1
	The Physical Basis .. .. .	2
	Climate .. .. .	2
	Vegetation .. .. .	8
	Relief and Soils .. .. .	9
	River Alluvium Soil Unit .. .. .	10
	The Nupe Plains and Scarps Soil Unit .. .. .	11
	The Basement Complex Soil Unit .. .. .	12
	The Human Basis .. .. .	13
	The Historical Factor in the Middle Belt Population .. .. .	17
	The Economic Basis .. .. .	19
	The Changing Economy of the Middle Belt .. .. .	23
2	<u>CONCEPTUAL FRAMEWORK</u> .. .. .	28
	The "Labour Surplus" Theory .. .. .	30
	The "Land Surplus" Theory .. .. .	35
	Operational Basis for the "Land Surplus" Model .. .. .	37
	Objectives of the Study .. .. .	42
	Methodology and Data Collection .. .. .	43
3	<u>THE DISTRIBUTION AND DEMOGRAPHIC ANALYSIS OF THE POPULATION</u> .. .. .	48
	The Population Size and Distribution .. .. .	48
	Low Density Districts .. .. .	51
	Medium Density Districts .. .. .	52
	High Population Density Districts .. .. .	55
	Changing Patterns of Population Distribution .. .. .	57
	Tribal Distribution .. .. .	61
	Age and Sex Distribution .. .. .	66
	Male-Female Ratio .. .. .	71
	Marital Status .. .. .	72



<u>CHAPTER</u>	<u>Page</u>
Religion .. .. .	75
Education .. .. .	80
Population Growth .. .. .	85
4 <u>THE ORGANISATION OF AGRICULTURAL LABOUR AND LAND AND LABOUR RELATIONSHIPS</u> .. .. .	95
The Farming Unit .. .. .	95
Organisation of the <u>Gandu</u> .. .. .	97
Changing Patterns of the Organisation of Farming Units .. .. .	99
Implications of the Changes for Rural Economic Development .. .. .	105
Sources of Agricultural Labour .. .. .	106
Family Labour .. .. .	106
The Role of Women in Family Labour .. .. .	108
Co-operative or Collective Labour .. .. .	109
Wage Labour .. .. .	111
The 'Land Surplus' Theory in Relation to the Middle Belt .. .. .	113
Land and Labour Relationships .. .. .	114
Labour Unit .. .. .	115
Determinants of Size of Farm .. .. .	118
5 <u>THE ORGANISATION OF AGRICULTURAL LAND</u> .. .. .	120
Objectives .. .. .	120
Land Tenure Systems .. .. .	121
(i) Communal Ownership of Land .. .. .	122
Evolution of Individual Land Ownership .. .. .	124
(ii) <u>Plots</u> and Individual Family Ownership of Land .. .. .	129
Organisation of Agricultural Land and Rural Economic Development .. .. .	139
Security of Land Title .. .. .	140
Mobility of Farmers .. .. .	141
Exploitation of Peasant Farmers .. .. .	143
Land-Use .. .. .	145
6 <u>PATTERNS OF LAND USE AND AGRICULTURAL PRODUCTION</u> .. .. .	148
Land Use .. .. .	150
Cultivated Upland .. .. .	152
Cultivated <u>Fadama</u> .. .. .	154
Bush Fallow .. .. .	156
Bush and Other Uncultivated Land .. .. .	157
Settlements .. .. .	158

CHAPTER

Page

Road and Bush Paths .. .. .	159
Rivers .. .. .	159
Land Use and Carrying Capacity of the Land ..	160
Number and Acreage of Farm Holdings and Crop Production .. .. .	165
Crop Production .. .. .	168
The Role of Agriculture in the Economic Development of Nigeria .. .. .	168
Export Crops Versus Food Crops .. .. .	170
Crops Grown .. .. .	172
Factors Determining Crops Grown .. .. .	179
Increasing Demand for Food Crops .. .. .	182
Price Rise in Food Crops .. .. .	183
Malpractices By Marketing Board Agents .. .. .	185
Type of Farmland .. .. .	186
Land Tenure .. .. .	186
Tribe and Choice of Crops .. .. .	187
<b>7</b> <u>TRANSPORTATION AND MARKETING OF AGRICULTURAL PRODUCE</u> .. .. .	<b>191</b>
The Role of Transport in Rural Development .. .. .	191
Transport Facilities .. .. .	192
Effects of Transportation on Crop Marketing .. .. .	195
The Structure of Food Crop Marketing .. .. .	200
Classification of Markets .. .. .	202
Roadside Markets .. .. .	204
Village Markets .. .. .	204
Central Markets .. .. .	206
Urban Markets .. .. .	207
Market Location and Distribution .. .. .	210
Market Periodicity .. .. .	213
The Role of Middlemen in Crop Marketing .. .. .	215
The Problems of Marketing Food Crops .. .. .	218
Lack of Steady Demand for Food Crops .. .. .	219
Problems of Food Crop Storage and Processing .. .. .	221
Restrictive Practices by Local Authorities .. .. .	223
Uniqueness of Food Crop Marketing Problems .. .. .	225
<b>8</b> <u>NEW TRENDS IN AGRICULTURAL PRODUCTION</u> .. .. .	<b>227</b>
Increasing Commercialisation of Agriculture .. .. .	228
Rising Level of Income .. .. .	237
Increasing Intensity of Land-use .. .. .	239
The Development of Small Scale Irrigation Schemes .. .. .	240
Increasing Cultivation of Rice .. .. .	245
Economic Aspects of Rice Production .. .. .	248



<u>CHAPTER</u>		<u>Page</u>
	The Development of Large Scale Estate and Peasant Farming .. .. .	250
	Livestock Production .. .. .	251
9	<u>CONCLUSION AND IMPLICATIONS FOR RURAL ECONOMIC DEVELOPMENT</u> .. .. .	254
	REFERENCES AND BIBLIOGRAPHIES .. .. .	265
	APPENDICES .. .. .	279

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LIST OF TABLES

<u>TABLE</u>		<u>Page</u>
1	Mean Annual and Absolute Rainfall, (1950-63) in inches	4
2	Mean Monthly Rainfall in inches .. .. .	6
3	Mean Number of Rain Days (1951-1960) .. .. .	7
4	Human Contrasts Between the Middle Belt and Sudan Zone Provinces of Nigeria .. .. .	16
	(a) Major Tribal Groups: Percentage of Total .. .. .	16
	(b) Religion .. .. .	16
5	District Population Densities .. .. .	50
6	(a) Tribal Population Figures (1920) .. .. .	62
	(b) Tribal Population Figures (1952) .. .. .	63
7	Number of Wives Per Married Man .. .. .	74
8	Religious Groups: Percentage of Population .. .. .	76
9	Literacy and Educational Standard (1952) .. .. .	82
10	Literacy and Educational Standard (1969) .. .. .	83
11	Primary School Attendance Age Group 7-14 Years .. .. .	84
12	Population Growth 1931-1952 .. .. .	87
13	Number of Children Alive Per Mother By Principal Tribes in Northern Nigeria .. .. .	89
14	Fertility Survey of Women in Reproductive Age Groups .. .. .	90
15	Growth in Taxable Population 1958-1968 .. .. .	92
16	Types of Farming Units .. .. .	96
17	Farmers' Sources of Labour on the Farm .. .. .	107
18	Average Size of Farming Units, Labour Units and Farm Acreages .. .. .	117
19	Average Acreage and Percentage of Land Tenure of Farmlands by a Sample of Farmers .. .. .	125



<u>TABLE</u>		<u>Page</u>
20	Tribute Payment in Jima/Doko and Katcha Districts ..	137
21	Estimated Percentages of Types of Land Use .. ..	151
22	Number of Farming Units With Different Number of Farms	166
23	Average Size of Farms (in Acres) .. ..	168
24	Main Crop Combinations and Rotation (Upland Cultivation)	174
25	Prices of Farm Crops (Per Ton) at Abuja and Bida 1964 and 1969 .. .. .	184
26	(a) Yam Marketing Costs (Per Ton) .. ..	196
	(b) Guinea Corn Marketing Costs Per Bag (100 Mudus)	196
	(c) Rice Marketing Costs Per Bag (100 Mudus) .. ..	196
27	(a) Yam Marketing Per Ton .. .. .	197
	(b) Guinea Corn Marketing Costs Per Mudu .. ..	197
	(c) Rice Marketing Costs Per Mudu .. .. .	197
28	Market Price of Main Food Crops, July 1969 .. ..	198
29	Patterns of Trade at Gwagwalada and Dafa Markets ..	209
30	Increase in Average Size of Farms Per Farming Unit 1963/64 and 1968/69 (in Acres) .. .. .	229
31	Estimated Percentage of Farmers' Total Food Crop Production for the Market 1963/64 and 1968/69 Crop Seasons .. .. .	231
32	Crop Production for Marketing (Showing Main Producing/ Marketing Centres and Estimated 'Export' from the Study Area in 1968/69 Cropping Season) .. ..	232
33	Average Income Per Household (£N) .. .. .	237
34	Paddy Rice Yields on Different Types of Farms (lbs Per Acre) .. .. .	243
35	Main Irrigation Schemes .. .. .	244

LIST OF MAPS AND DIAGRAMS

<u>FIGURE</u>		<u>Page</u>
1a	The Middle Belt Showing the Study Area .. .. .	1
1b	The Study Area: Local Authority and Administrative Districts .. .. .	2
2	The Nigerian Middle Belt .. .. .	3
3	Relief and Drainage .. .. .	9
4	Major Soil Units .. .. .	10
5	Population Density - Nigeria (1952) .. .. .	13
6	Agricultural Export Production Per Person .. .. .	19
7	Agricultural Export Production Per Square Mile .. .. .	20
8	The Relation of Labour to Land .. .. .	30
9	The Relation Between Physical Output and Labour .. .. .	35
10	Population Density .. .. .	48
11	Population Distribution .. .. .	50
12	Age and Sex Pyramid .. .. .	68
13	Land Tenure Systems .. .. .	122
14	Land Use at Pandogari .. .. .	150
15	Land Use at Paiko .. .. .	151
16	Land Use at Katcha .. .. .	152
17	Transport Routes .. .. .	192
18	Chain of Intermediaries Between Producers and Consumers in the Internal Exchange Economy of the Middle Belt .. .. .	201
19	Market Location .. .. .	210
20	Market Periodicity .. .. .	213
21	Main Irrigation Schemes .. .. .	242



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ABSTRACT.

The main focus of the thesis is the examination of the factors responsible for rural economic development in a part of the Middle Belt of Nigeria. The discussion is based on the "land surplus" model and the approach is to regard population density and population growth as the independent variables which in their turn are major factors determining rural economic development in the Middle Belt of Nigeria.

The physical and human environment of the Middle Belt and its changing economy from that of a lagging to a growing zone are discussed. The distribution, demographic and cultural characteristics of the population in different parts of the study area are shown to have influenced the socio-economic organisation of agricultural land, labour, land use and crops grown. It is shown that the size of the population and density is below the Critical Population Density which the present system of land use can support.

The agricultural economy and new trends in agricultural production are discussed and it is shown that the production of food crops in the Middle Belt serves as an 'engine of growth' (as does the production of export crops in other parts of Nigeria) in the Nigerian economy as it is a major source of food supply for the growing population and urbanization in Nigeria. The increasing integration of the Nigerian economy which has led to a greater development of the internal exchange economy in the country is shown to have aided the increasing commercialisation of food crop production in the area. In addition, population movements into the area has led to increased agricultural production. These developments have turned the Middle Belt from a lagging to a 'frontier zone'.

In order to realize the potentialities of the Middle Belt in Nigeria, a number of suggestions are made for the further development of the rural economy of the area.

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CHAPTER ONETHE PHYSICAL AND HUMAN ENVIRONMENT OF THE NIGERIAN MIDDLE BELT

The objective of this study is to examine the process of rural economic development in a part of the Middle Belt of Nigeria within the context of the "land surplus" model. The area chosen for this study is Bida and Minna Divisions of Niger Province (Fig 1a.) and covers an area of 15,447 square miles (400,007 square kilometers). It consists of the six Local Authority areas of Abuja, Agaie, Bida, Kagara, Lapai and Minna in the North-Western State (Fig. 1b). Of all the Provinces in Nigeria, Niger Province has the least overall density of population (25 persons to the square mile in 1952), though contrasts abound in population distribution and density within the area. Within the study area are represented the broad patterns of the human and physical environment of the Middle Belt of Nigeria, and thus provides the basis for the study of the rural economic development of the Belt.

In order to be able to understand the setting within which this study is based a brief survey of the physical and human environment as well as of the economy of the Middle Belt in Nigeria is made, followed by a brief discussion of its changing economy.

THE NIGERIAN MIDDLE BELT

The earliest record of the term 'Middle Belt' in Nigerian literature has not been established with certainty, but Forde and Scott (1946: 24 & 180-190) used the term in describing the central zone in Nigeria where the economy is based mainly on food crop production and is quite distinct from those of the Forest and Sudan zones where export crop production is of greater importance. There is, however, no doubt that the term had been

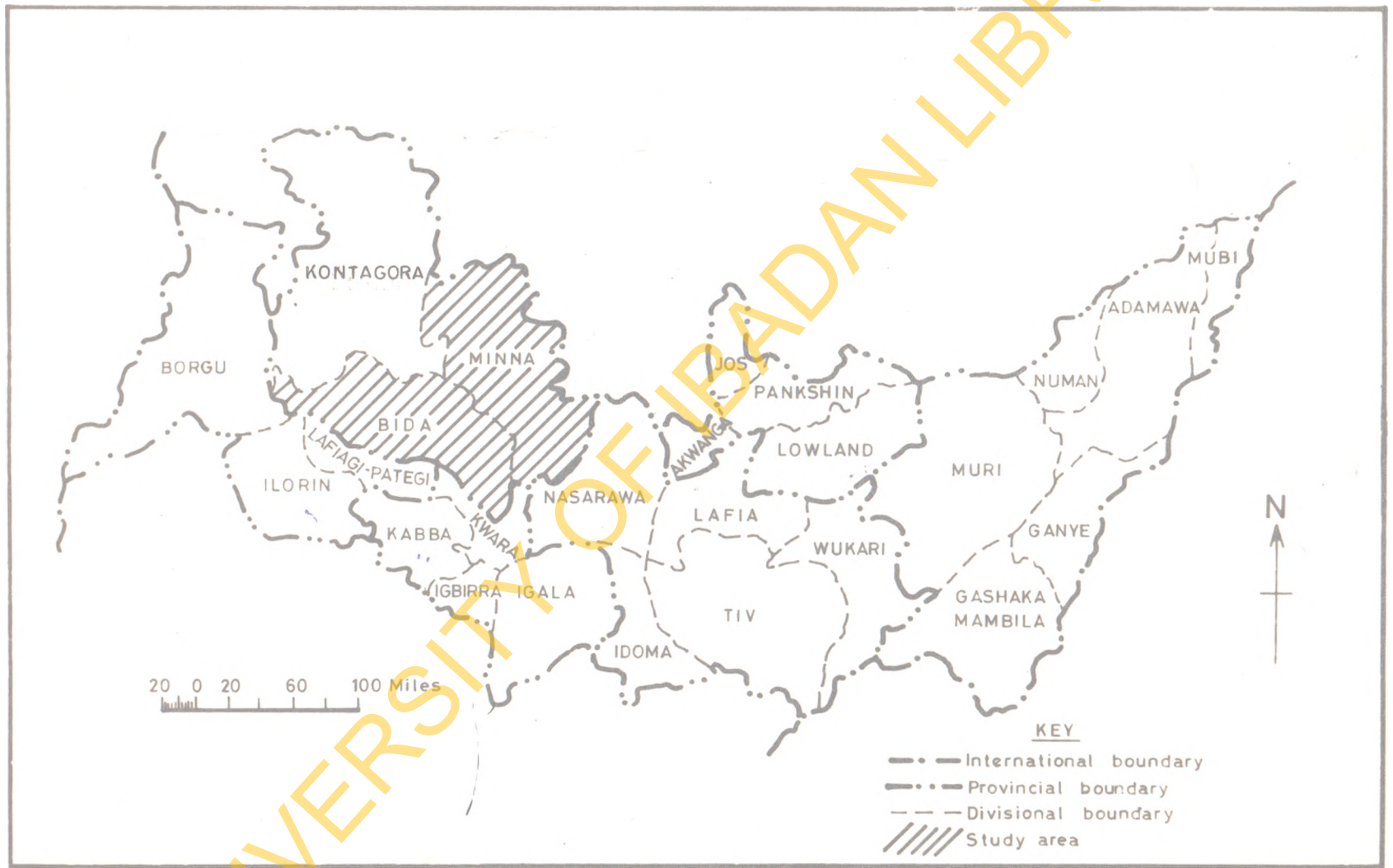


Fig 1a. THE MIDDLE BELT SHOWING THE STUDY AREA.



in use earlier in the country as many writers have been using it in association with the central zone in Nigeria characterised by low population densities, extensive unoccupied area, multiplicity of tribes and comparatively low rural economic development.

In Nigeria, the extent of the Middle Belt has not been clearly defined though Duchanan (1953:451) listed administrative provinces which he regarded as the "Middle Belt Provinces". These were the six administrative Provinces of Adamawa, Benue, Ilorin, Kabba, Niger and Plateau, to which list Church (1957:471) added southern Zaria Province. The Provincial delimitation is shown in Fig. 2 and they roughly coincide with the "Pagan Provinces" in the old Northern Nigerian Administration.

In the 1950's however, the term Middle Belt became of political significance in the six Middle Belt Provinces of the Northern Region in Nigeria. This led to the formation of a political party in 1955 - the "United Middle Belt Congress" committed to the creation of a "Middle Belt Region" out of the former Northern Region of Nigeria. The party did not, however, achieve its political objective and in this regard it has been observed that the Middle Belt concept<sup>1</sup> has no basis within the political geography of Nigeria (Prescott, J.R.V. 1960 and Agboola, S.A. 1961).

## THE PHYSICAL BASIS

### Climate

In defining the Middle Belt of Nigeria, Brammer and Walker (1960)

- 
1. For further discussion of the Middle Belt concept, see (1) Agboola, S.A. (1962), "Some Geographical Influences on the Population and Economy of the Middle Belt West of the Niger", Unpublished M.A. Thesis, (London), Chapter One, pp. 1-30. (2) Gleave, M.B. and White, H.P. (1969), "The West African Middle Belt: Environmental Fact or Geographer's Fiction?" Geographical Review, Vol. 59, No. 1, pp. 123-139.

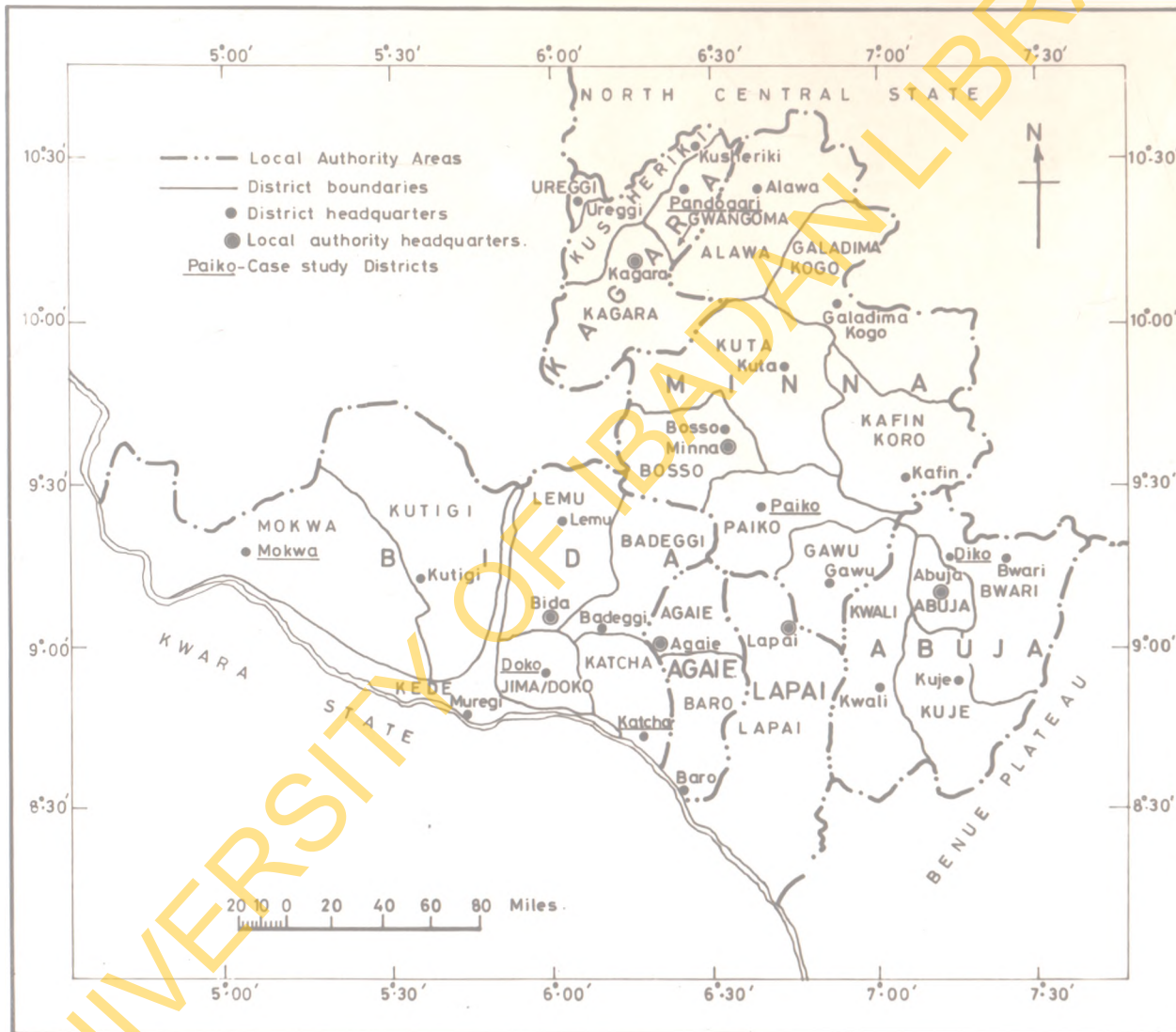


Fig 1b. THE STUDY AREA  
LOCAL AUTHORITY AND ADMINISTRATIVE BOUNDARIES



and Pullan (1962) attempted to give a climatic definition and asserted that it is not a zone of transition but a distinct zone in Nigeria. They suggested that the length of the dry season is the primary basis of the definition. Church (1957: 56) suggested that the Middle Belt largely coincides with the Southern savannah climate with the length of the dry season varying from 4 to 5 months, a wide diurnal range of temperature and a mean relative humidity which varies between 50% and 60%, but in the dry season is less than 70% at 9.00 hours. Brammer and Walker (1960) suggested a dry season of 140 or less days for the northern boundary, and for the southern a dry season of more than 80 days with a mean annual rainfall of 55 inches.

Pullan (1962) reviewed the work of Church and Brammer and Walker and agreed with them that length of the dry season is the primary basis for defining the Middle Belt, as he considered this the most important factor in the climatic life of the Middle Belt. In seeking a rational climatic definition, he incorporated three climatic factors of the length of the dry season, its range and variation as well as its mean values. He therefore concluded that "the Middle Belt is that area in Nigeria in which over a period of years, 50% or more of all the years have a dry season of 4 or 5 months duration". He added that "ignoring high plateau and mountain ranges the rainfall over the Middle Belt varies from 55 inches in the south-east to 40 inches in the south-west" and that the southern limit "never has all months over 55% relative humidity (Church gave 70%) while the northern boundary is where there are 6 months with 55% relative humidity". This delimited boundary of the Middle Belt is shown in Fig. 2.

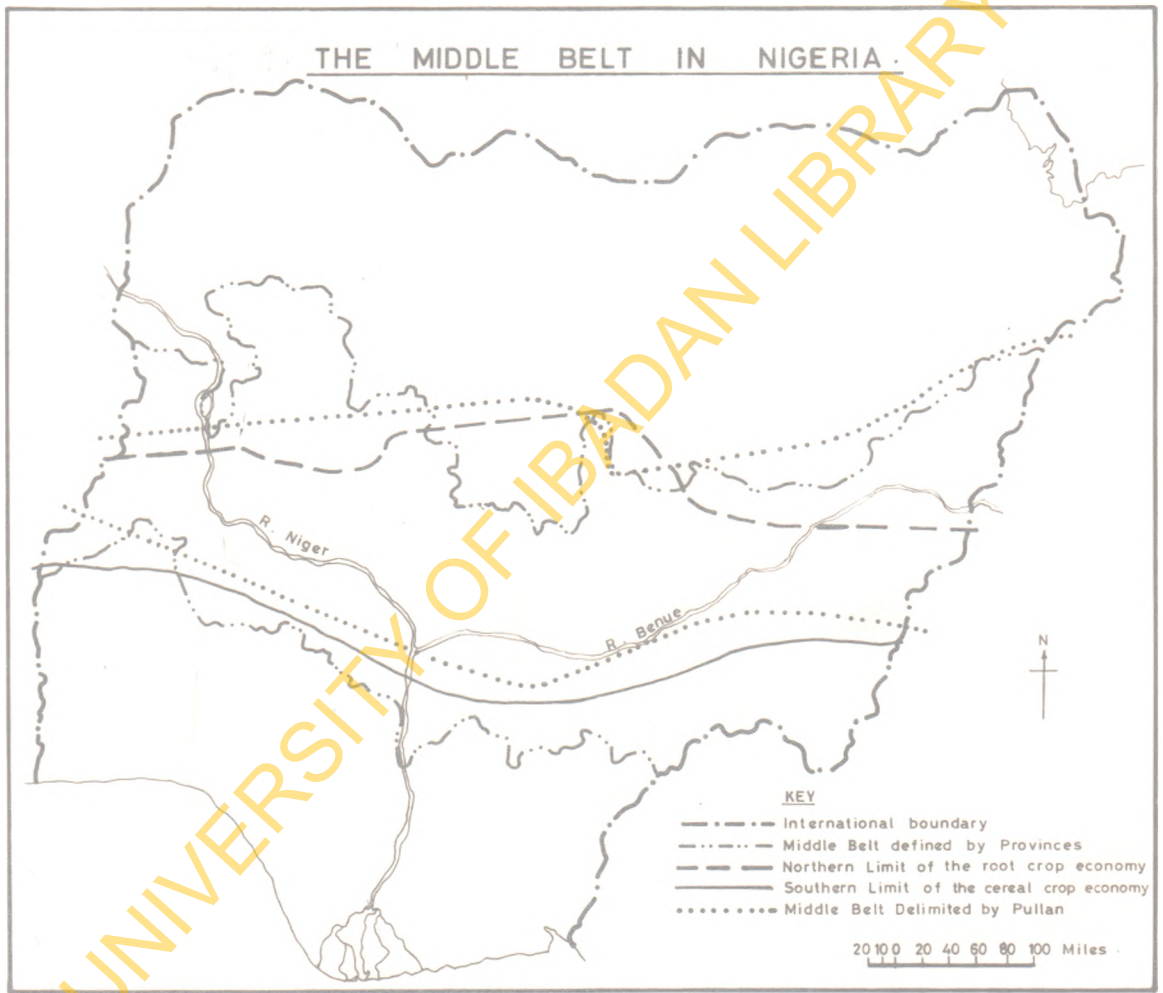


Fig 2.



**TABLE 1: MEAN ANNUAL AND ABSOLUTE RAINFALL, 1950-63**

Station	Latitude	Altitude in feet	No. of Years of Records	Mean Annual Rainfall in inches	Absolute Rainfall 1950-63		% Years of Double Peak 1950-63
					Max.	Min.	
Mokwa	9°18'	500	11	42.97	52.81	29.61	85
Bida	9°06'	473	33	48.42	52.36	31.55	78
Minna	9°37'	848	45	52.62	62.25	39.43	64
Abuja	9°10'	1600	13	67.50	74.06	53.40	54
Diko	9°15'	1775	14	60.73	68.87	49.84	50

Sources: British West African and Nigerian Meteorological Services.

(1) Annual Summary of Observations, 1962.

(2) Annual Summary of Observations, 1950 - 1963.

The outstanding characteristic of the climate of the Middle Belt is its variability - particularly of its rainfall in terms of onset, distribution and amount. For example, Table One<sup>1</sup> shows the mean annual rainfall and absolute rainfall (maximum and minimum) 1950 - 1963 in inches for five stations in the study area. The mean annual rainfall varies from 42.97 inches at Mokwa to 67.50 inches at Abuja. The differences between maximum and minimum values of 20 inches and over are the rule rather than the exception in the study area. The mean monthly rainfall and the mean number of rain days (Tables 2 and 3) show a gradual increase during the beginning of the rains from March/April to July while they are at their highest in September. This does not, however, show the variability in the rainfall regime. The time of onset of the rains is usually late in March but this is most irregular. For instance, Mokwa, Bida, Abuja and Diko had no rainfall in March 1950. In March 1958, Mokwa had 0.5 inch; Abuja had 0.9 inch; Diko had 1.98 inch. and Bida had 2.68 inches. The end of the rains is also irregular, and it is not unusual for some stations to have over 2 inches of rainfall in November, as at Diko - 3.6 inches in 1958 while even in October there may be little or no rainfall as at Bida where only 0.6 inch rain fell in October 1959.

The variability and erratic nature of rainfall distribution in the Middle Belt constitute problems to agriculture in the Middle Belt and

- 
1. Sources used for discussing the climate of the study area are the Monthly Weather Reports of the British West African and Nigerian Meteorological Services for the period 1950 - 1963 and the Annual Summary of Observations, 1962 by the Nigerian Meteorological Services.



TABLE 2: MEAN MONTHLY RAINFALL IN INCHES

Months	Hokwa	Bida	Minna	Abuja	Diko
January	0.1	0.2	0.0	0.1	0.1
February	0.2	0.3	0.2	0.4	0.4
March	1.1	1.1	0.7	1.1	1.0
April	3.6	3.0	2.3	3.2	3.6
May	5.2	5.9	5.7	5.8	5.5
June	7.8	7.7	7.2	7.2	7.3
July	6.7	7.8	8.2	11.8	9.2
August	5.6	8.2	10.5	12.2	10.3
September	9.7	10.1	11.7	14.4	14.1
October	3.9	3.9	5.6	8.6	8.1
November	0.4	0.3	0.4	1.5	1.1
December	0.1	0.1	0.1	0.3	0.2
Total	44.4	48.6	52.6	67.2	60.9

Source: Nigerian Meteorological Services.

Met. Note No. 4: Mean Monthly Rainfall and Raindays.  
Revised to 1960; Lagos 1965.

TABLE 3: MEAN NUMBER OF RAIN DAYS (1951-1960)

Months	Mokwa	Bida	Minna	Abuja	Diko
January	0	1	0	0	0
February	1	1	0	1	1
March	3	3	3	4	3
April	6	6	6	7	8
May	10	9	13	12	13
June	13	14	15	14	16
July	12	14	17	18	20
August	12	13	19	18	18
September	17	18	21	20	23
October	9	10	15	16	18
November	1	1	2	3	4
December	0	0	0	1	0

Source: Nigerian Meteorological Services.

Met. Note No. 4: Mean Monthly Rainfall and Raindays.  
Revised to 1960; Lagos 1965.



underlie the need for supplementing rainfall with irrigation in the dry season. This need is further reinforced by the fact that in a division of Nigeria into regions based on the relationship between the mean annual water surplus and the mean annual water deficiency, the water deficit of this area exceeds surplus by nearly 500 mm. The Middle Belt is regarded as an area offering possibilities for modern irrigation development (Garnier, B.J. 1957: 354), and among the new trends in rural economic development of the area is the establishment of small scale irrigation schemes.

#### Vegetation

The vegetation of the Middle Belt reflects its climate and it is associated with the Guinea savanna of the southern savanna climatic zone. Keay (1949 & 1959) distinguished two vegetation belts in the Guinea savanna - the southern Guinea zone and the northern Guinea zone and applied the term "derived savanna" to the southern part of the southern Guinea zone. In spite of this subdivision, Gleave, M.B. and White, H.P. (1969: 127) agree with Buchanan (1953: 452) that whatever floristic contrasts exist "between the northern and southern Guinea savannas, the Guinea zone shows a high degree of geographical unity".

Keay (1949) described the typical vegetation of the Guinea zone as "open savanna woodland" with deciduous broad-leaved trees, occasionally forming dense stands but more usually relatively open with a ground vegetation of tall grass (5 to 10 feet high). The trees have short boles and broad leaves and grow up to 40 to 50 feet high, but are not suitable for sawn timber. Farming and grass fires also tend to make the vegetation

more open and to modify the floristic composition. Although local variations in soil conditions tend to modify the vegetation, the Guinea savanna vegetation is readily distinguishable and forms the climax vegetation of the Middle Belt.

### Relief and Soils

The relief of the study area is dominated by two main underlying geological structure: (i) the Cretaceous sandstones which underly the southern and central parts and on which the Niger flood plains have been developed; and (ii) the Pre-cambrian Basement Complex which includes a variety of igneous and metamorphic rocks and which has given rise to isolated hills in the Northern and Eastern parts of the area. On the former have been developed the Nupe plains underlain by the Nupe sandstones and by the younger sedimentary rocks of the valleys of the Niger and its tributaries. Around these are found gently rolling and undulating plains of varying width, flanked by flat topped sandstone hills. The Pre-cambrian Basement Complex is made up of older granites, metasediments and quartzites, wherein the differences in resistance to weathering and erosion have given rise to considerable variations in the relief features. Fig. 3 shows the three broad relief regions - the Niger Flood Plains, the Nupe Plains and the Eastern High Plains, into which the study area could be divided.

The characteristics of the soils of the study area are in the main determined by the nature of the underlying rocks. The effects of geology and topography on the soils are very striking and these to a great extent have limited the climatic effects which may be present. The soils are



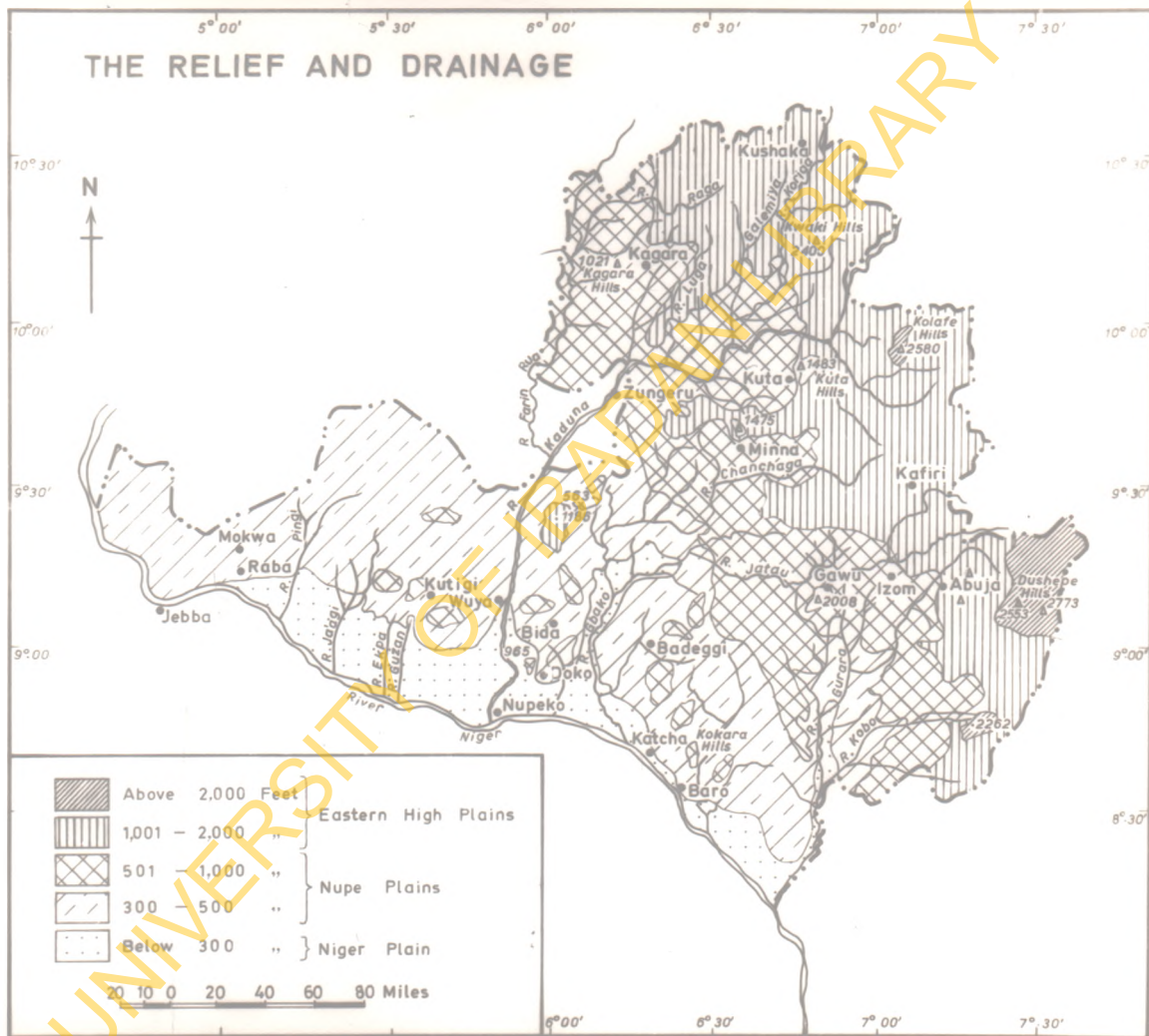


Fig 3.

broadly uniform and are in the main "sedimentary" apart from those of the river valleys and flood plains. The soils can however be classified into three main units: (Fig. 4)

1. River Alluvium Soil Unit
2. Nupe Plains and Scarps Soil Unit
3. The Basement Complex Soil Unit

River Alluvium Soil Unit. The river Niger and its tributaries have given rise to a considerable area of complex alluvial soils along their flood plains. As the Niger and its tributaries overflow their banks annually, they lay down a system of loamy and clayey sediments over the flood plains as well as on the flat terraces which rise 6 to 15 feet above the present flood level. The river alluvium soil unit is underlaid by Cretaceous sandstones but through deposition by the rivers, the alluvial soils now show a great variety over short distances both horizontally and vertically.

Higgins (1960: 20) recognized eight main soil series in the river alluvium soil unit and these vary from river level soils to river basin and sandy terrace soils to miscellaneous alluvial fans, colluvial slopes, sand banks and mud flats with fine or moderately fine textured hydromorphic soils.

The river alluvium soil unit is of major agricultural importance and on both sides of the Niger is used for growing such crops as rice, sugar cane, sweet potato, onion, pepper and other vegetables. It has been estimated that over 600,000 acres of land are available for both estate and peasant agriculture in this soil unit area (Balfour Beaty and



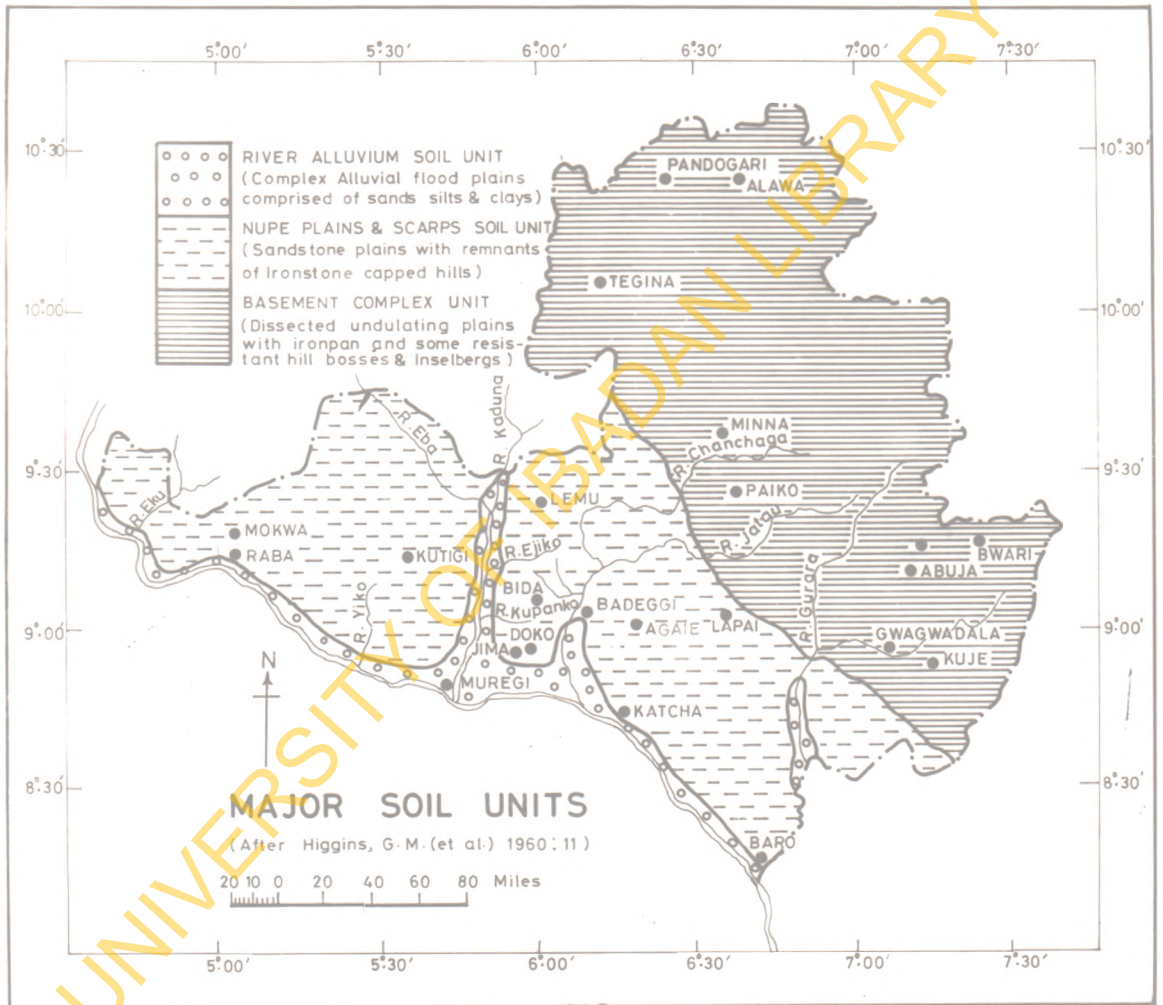


Fig 4.

NEDECO 1961, v: 88 - 90). Prospects for commercial production of sugar cane, rice and jute are very high in this soil unit area. The area is however sparsely populated and less than 1% of the total area is utilized for agricultural purposes. The present sparse population is however an advantage in that much land is available for the development of estate agriculture as shown by the Bacita Estate on the south bank of the Niger.

#### The Nupe Plains and Scarps Soil Unit

These cover the western and central parts of the study area and is found in such areas as Mokwa, Kutigi, Bida, Lemu and Agaie. The soils are red ferralitic soils and are generally deep with little horizontal differentiation, though with a high organic matter content. There is little or no reserve of weatherable minerals and generally, considerable quantities of free iron and aluminium oxides are present. The parent material is derived from a coarse sandstone (with occasional shale beds) of Cretaceous or Eocene age. Tomlinson, P.R. (1965: 59) put forward the view that the soils were probably formed under a climate more humid than the present while the resultant profile characteristics have persisted.

The characteristic soil of this unit is a dark grey silty sand, 6 to 15 inches deep. It is usually waterlogged during the rainy season, and is developed upon typical flat sheets of impervious iron-stones. The surface is normally strewn with boulders and the bare ironstone sheets are exposed in places. Generally the upper part of the sheet is broken and irregular so that patches of reddish gravelly loam occur on top of the hills (Higgins, G.M., 1960: 13). Even though the soils are rather uniform in colour, there are significant variations in texture from place



to place. For example at Hokuwa, the soil has a noticeable silt content and tends to form an impervious "pie-crust" on the surface under the impact of rain drops while the sandy clayey soils around Bida do not.

The climate and soil permit a variety of crops to be grown and crops include yams, guinea corn, maize, groundnuts, cotton and even rice especially in the fadamas. The fairly uniform physical properties and level plain nature of the soils make them suitable for large-scale mechanized cultivation, though the sporadic occurrence of ironstone may limit its suitability in places.

#### The Basement Complex Soil Unit

This soil unit covers the northern and eastern parts of the study area and the soils are ferruginous tropical soils developed on crystalline acid rocks. Apart from the river alluvium soil unit, this soil unit is the most variable of the soils of Northern Nigeria. The parent rocks give rise to a large variety of soil types within short distances. The varying topography has also given rise to a well recognisable soil catena. The upper slope soils consist of some 3 to 6 inches of brown humid sand or loamy sand gradually merging into yellowish red loams. The middle slope soils in general contain a high content of red and black hard iron and manganese concretions. In some cases the concretions are cemented to form a compact but root-penetrable pan. The catena is completed by colluvial and alluvial soils of the lower slopes and valley bottoms which are essentially very pale brown or light grey sands. (Higgins, G.M. 1960: 32).

The productivity of these soils is variable and a wide range of crops is found: cotton in Alawa and Pandogari areas; yams, guinea corn, acha

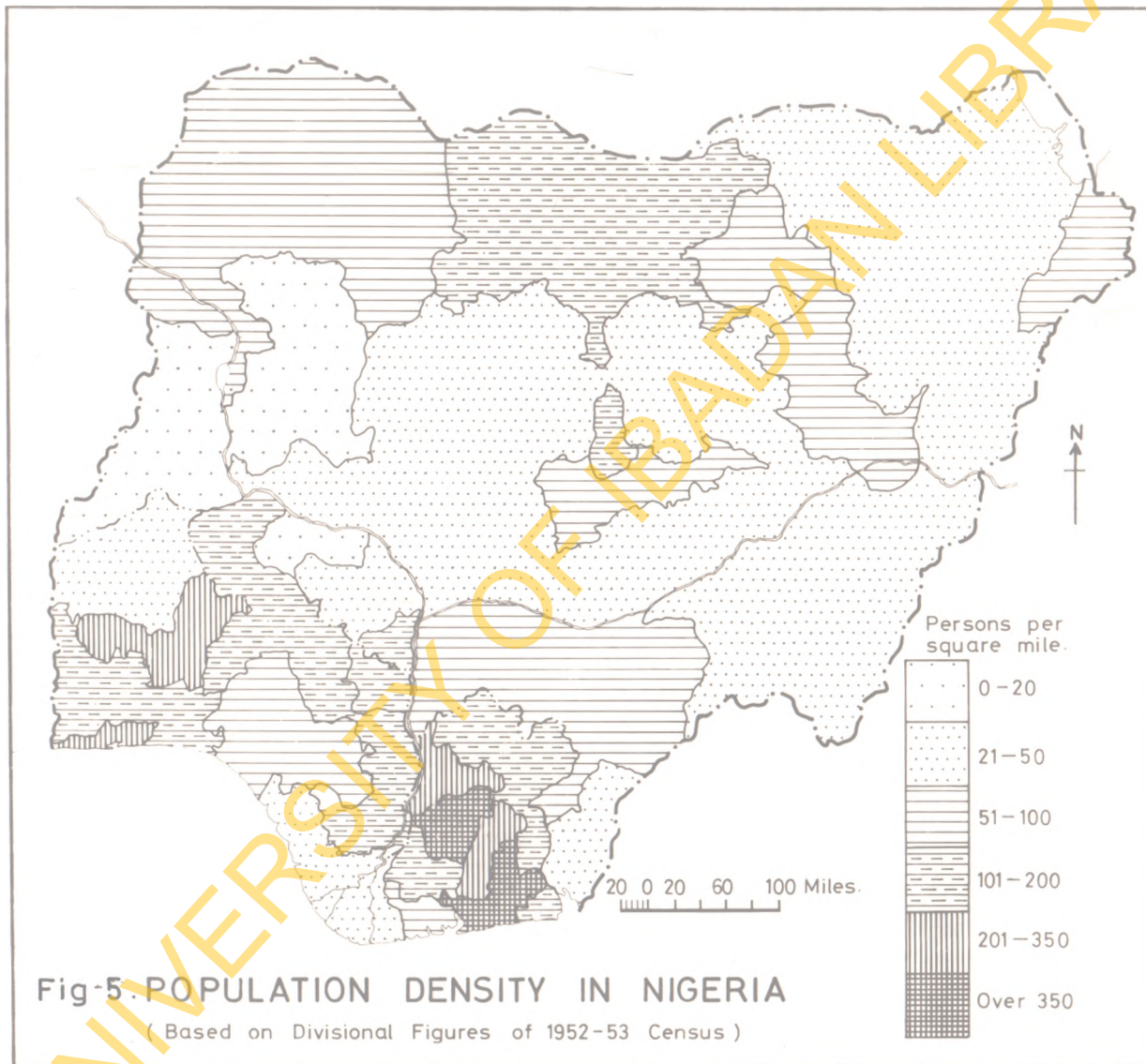
and beninseed around Abuja. The chief food crops are yam, guinea corn, and millet.

The characteristics of the soils of the study area have been given a fairly detailed discussion in view of the supposed 'poverty' of Middle Belt soils as portrayed by some writers. It has been claimed that the "skeletal nature of most of the (Middle Belt) soils seriously reduce their usefulness to agriculture" (Agboola, S.A. 1962: 36); while the soils are also supposed to "have generally lower nutrient status" (Brammer, H: 1962). It is felt that these are premature judgements of Middle Belt soils as they are in no demonstrable way more 'skeletal' than either of the soils of the Forest and Sudan zones. Soil fertility investigations in the Middle Belt of Nigeria have shown with experiments that "with adequate organic manure, or with fertilizer, continuous cropping can be sustained without loss of fertility" (Watson, K.A. and Goldsworthy, P.R. 1965: 302). This is quite applicable to any soil unit in Nigeria and much research work into the fertility and quality of Middle Belt soils needs to be done vis-a-vis soils in other parts of Nigeria before a meaningful conclusion can be made as to their 'poverty', 'skeletal nature' or 'low nutrient status'.

#### THE HUMAN BASIS

The population density map of Nigeria (Fig. 5) clearly reveals a relatively sparsely populated area in the central zone of the country, roughly coincident with the Southern Guinea Savanna zone. Here population densities are lower than those of the Forest and Sudan zones. In 1952 the overall population density per square mile for Nigeria was 84, while





**Fig-5. POPULATION DENSITY IN NIGERIA**

( Based on Divisional Figures of 1952-53 Census )

for the three zones of Nigeria the figures were 181 for the Forest zone, 75.3 for the Sudan zone and 41.6 for the Middle Belt. The Middle Belt covers 37% of the area of Nigeria but has only about 16% of her total population, while the Forest and Sudan zones cover 21% and 42% respectively of her area and have 46% and 38% of her population respectively.

In the Forest and Sudan zones of Nigeria there are large areas of high population densities. In the Forest zone of Eastern Nigeria high population densities per square mile were recorded in such Divisions as Orlu (873), Okigwi (754), Uyo (669), Calabar (666), Eket (494) and Awka (439). In the Forest zones of Western Nigeria high population densities per square mile were also recorded in such Divisions as: Oshun (371), Ibadan (359) and Ife (265). In the Sudan zone high population densities are found centred around Kano with densities varying from 157 in Katsina Division to over 500 persons per square mile. In the Kano Close-Settled zone densities in the vicinity of Kano are over 650 per square mile (Mortimore, M.J. and Wilson, J. 1965: 5). There are however areas with lower population densities in both the Forest and Sudan zones, as can be seen in parts of the dense rain forest zone of Ogoja and Calabar Provinces where densities vary from 144 to 146 per square mile, and in Benin Division where the density of 73 to the square mile is below the national average of 84. In the Sudan zone population density is low in Bauchi and Bornu Provinces where the mean densities are 55 and 35 to the square mile respectively. In spite of these low density areas and the fact that the population densities are not uniform within administrative divisions, both the Forest and Sudan zones in Nigeria are areas of high population



densities.

Low population densities per square mile are typical of the Middle Belt of Nigeria with densities as low as 7 in Borgu Division, 19 in Kontagora Division, 24 in Muri Division and 25 in Minna Division. In fact, the lowest Divisional and Provincial population densities per square mile in Nigeria are recorded in the Middle Belt in Borgu Division (7) and Niger Province (25) respectively. There are, however, some areas in the Middle Belt with localised high densities as in Ilorin Division with an overall density of 151 persons per square mile; Igbirra Division 137, Jos Division 166 and Tiv Division 73 persons per square mile. These localised "population islands" (Gleave, M.B. and White, H.P. 1969: 131) cannot be compared either in extent or in numbers with the population concentration in both the Forest and Sudan zones in Nigeria. In fact, they are fewer and smaller and cannot be regarded as "core areas" in the sense in which the population concentrations of the Forest and Sudan zones are so regarded (Buchanan, K.M. and Pugh, J.C. 1955: 58). Most of the population islands are confined to mountainous areas such as the Jos Plateau where physiography has provided refuge for small tribes, - and to areas around the Nupe and Yoruba Kingdoms which offered protection during the slave raids of the 19th century.

Other human contrasts between the Middle Belt and other zones of Nigeria are the tribal and religious diversity of the population. The Middle Belt is an area of small tribal groups. Table 4(a) shows that groups of small tribes form about 90% of its total population in contrast to the Sudan zone where groups of small tribes form less than 30% of the

**TABLE 4: HUMAN CONTRASTS BETWEEN THE MIDDLE BELT AND SUDAN ZONE PROVINCES OF NIGERIA**

(a) Major Tribal Groups: Percentage of Total

Major Tribal Groups	Middle Belt		Sudan Zone	
	1931	1952	1931	1952
Hausa	4.4	5.3	44.9	46.5
Fulani	5.9	5.6	27.2	23.8
Others	89.7	89.1	27.9	29.7

(b) Religion

Religious Group	Middle Belt (%)		Sudan Zone (%)	
	1931	1952	1931	1952
Moslems	21.7	28.8	87.1	90.0
Christians	1.4	7.5	0.1	0.1
Traditional Religion	76.9	63.7	12.8	9.9

Source: Population Census of Northern Nigeria, 1931 and 1952.

population. The 1931 population census listed 135 tribal groups in the Middle Belt with many of the tribes fewer than 500 people. For example, in Niger Province, the Rubu numbered 360; the Kalkanda 472 in both Niger and Kabba Provinces; the Homa and Dama in Adamawa Province were 216 and 263 respectively, while the Chip and the Chokoba in Plateau Province were 226 and 377 respectively. Kirk-Greene (1958: 2) observed that a total of 230 tribes were listed in Adamawa Province with a population of 1,181,164



in 1952. Of these, he indicated that only three - the Chamba, Higi and Mumuye had a numerical strength of over 50,000.

Table 4(b) shows the contrast in religion between the Middle Belt and the Sudan zone. About 90% of the population in the Sudan zone profess Islam in contrast to the Middle Belt where Moslems form less than 30% of the population and about 70% belong to the Traditional religion (hence the term 'Pagan Provinces'). Christianity also gained greater foothold in the Middle Belt where 7.5% of the population embraced Christianity by 1952 in contrast to 0.1% in the Sudan zone.

#### The Historical Factor in the Middle Belt Population

The fragmentary nature of the tribes and religious composition of the population, resulted in the lack of any powerful or well organised political administration which could successfully ward off outside attacks. This laid the Middle Belt wide open to the slave raiders of the moslem Hausa-Fulani Empires of the Sudan zone during the Jihad.

The Jihad, which originally started with the noble idea of spreading Islam, later degenerated into slave raiding. It led to mass depopulation of the Middle Belt population as "where there was no pre-existing mohammedanism to pave the way for the Jihad and assist it by civil war, the result of the Fulani conquest has been wholesale depopulation". Many towns, villages and extensive areas of settlement were completely destroyed and "whole districts carried into slavery, or driven to take refuge in mountain fastnesses". (Burdon, J.A. 1904: 644). In Adamawa area, Kirk-Greene claims that the passion of the Fulani for slave raiding had denuded the country of its population and that "the truly awful desolation and

destruction of life caused by this slave-raiding is apparent today: enormous tracts of land have gone out of cultivation and one constantly sees the ruins of towns now overgrown with jungle" (Kirk-Greene, A.M.H. 1958: 25).

The situation with regard to the depopulation of the Middle Belt is succinctly given in the Annual Colonial Report for Northern Nigeria 1900-01 which described the area around Kontagora as "denuded of all its inhabitants except old men and babies". The original town of Birnin completely destroyed by the Emir of Kontagora during his slave raids, is still a visible evidence of the extent of mass destruction which took place in the Middle Belt. The Report went on further to record that Nasarawa area, "a once fertile and populous country" had only "the remains and ruins of large and totally deserted towns". In addition it was recorded that "there is probably no part of the Dark continent in which the worst form of slave raiding still exist to so terrible an extent ..... nor are they even provident of their hunting ground, for those who are useless as slaves are killed in large numbers, the villages burnt, and the fugitives left to starve in the bush" (Orr, G.W.J. 1911: 100).

It is evident from this brief historical survey that the present sparse population of the Middle Belt to a great extent resulted from the ruthless slave-raiding which went on until the end of the 19th century. The population was dispersed all over the Fulani Emirates of the Sudan zone as slaves, and can still be recognised in some Emirates as in the Close-Settled zone of Kano Emirate, where "the third element (of the population) consisted of the members of a number of different Middle Belt



tribes brought to the Hausa States as slaves" (Mortimore, M.J. and Wilson, J. 1965: 5). Many parts of the Middle Belt are now less densely populated than they were a century ago and so the historical factor has contributed in no small measure to the sparse population and the present shortage of human resources to develop the resources of the area.

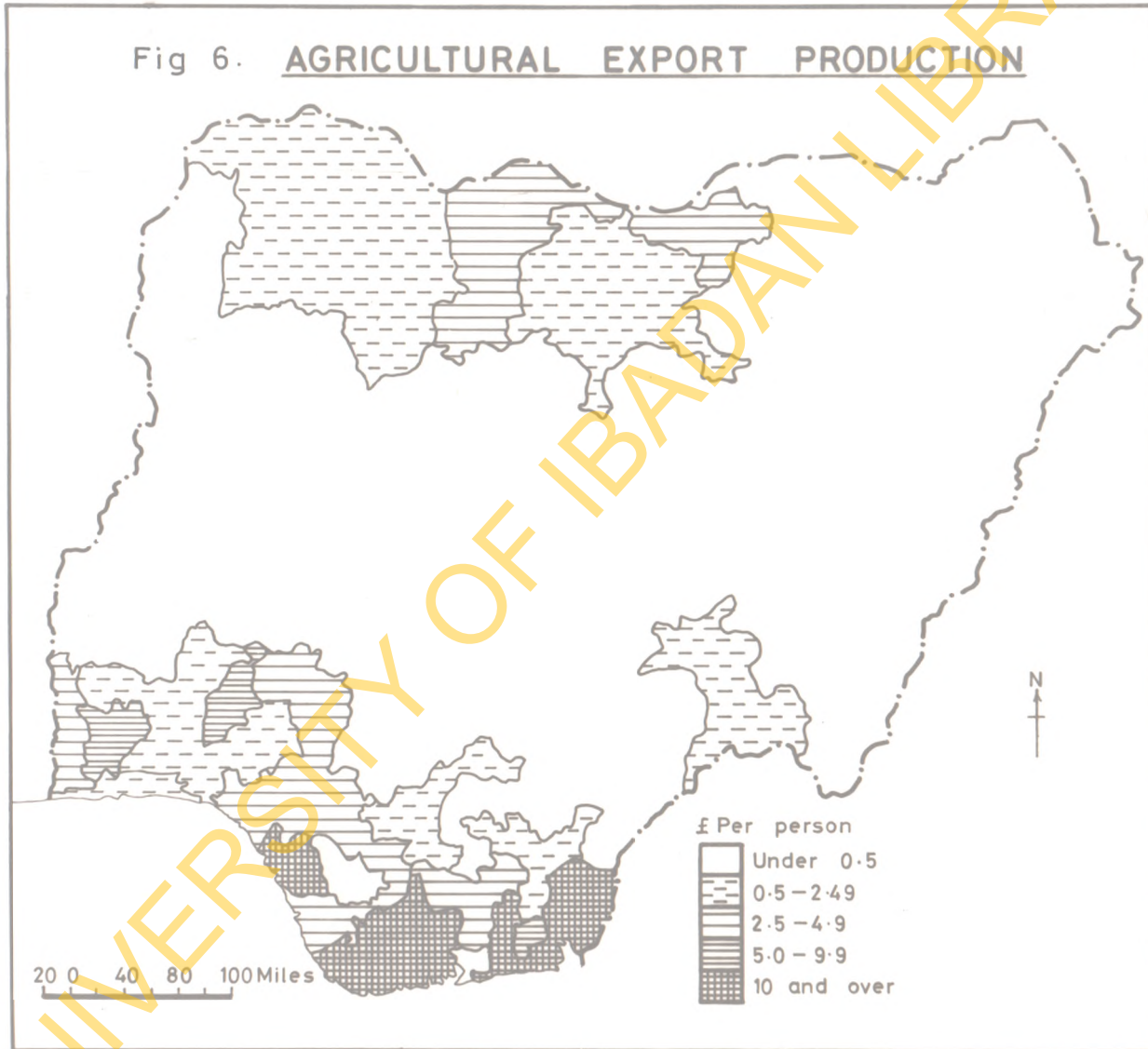
#### THE ECONOMIC BASIS

The Middle Belt economy of Nigeria is distinct from those of the Forest and Sudan zones as the Middle Belt is an area where agricultural production for export is of limited significance. The emphasis is on food crop production, and both the root crops of the forest zone and the grain crops of the Sudan zone can be successfully grown. Tsetse infestation of the Middle Belt however precludes the belt from the successful rearing of cattle which enriches the economy of the Sudan zone.

The absence of major export crops in the Middle Belt has been noted by many workers as the major characteristic of its economy. Buchanan (1953: 465) noted that less than one-tenth of the former Northern Region's exports were derived from the Middle Belt in 1948-49. Figs. 6 and 7 show that the Middle Belt fares poorly in the agricultural export economy of Nigeria. In terms of both agricultural export income per capita and per square mile, the Middle Belt lags behind both the Forest and Sudan zones.

The situation with export crops production still remains the same as in 1966/67 export crop year, in that the Middle Belt which covers nearly half of the area of the former Northern Region produced only 9.5% of the tonnage of the Region's export crop exports. The Middle Belt had an average of 2.15 tons per square mile and 104 lbs. per head of its

Fig 6. AGRICULTURAL EXPORT PRODUCTION



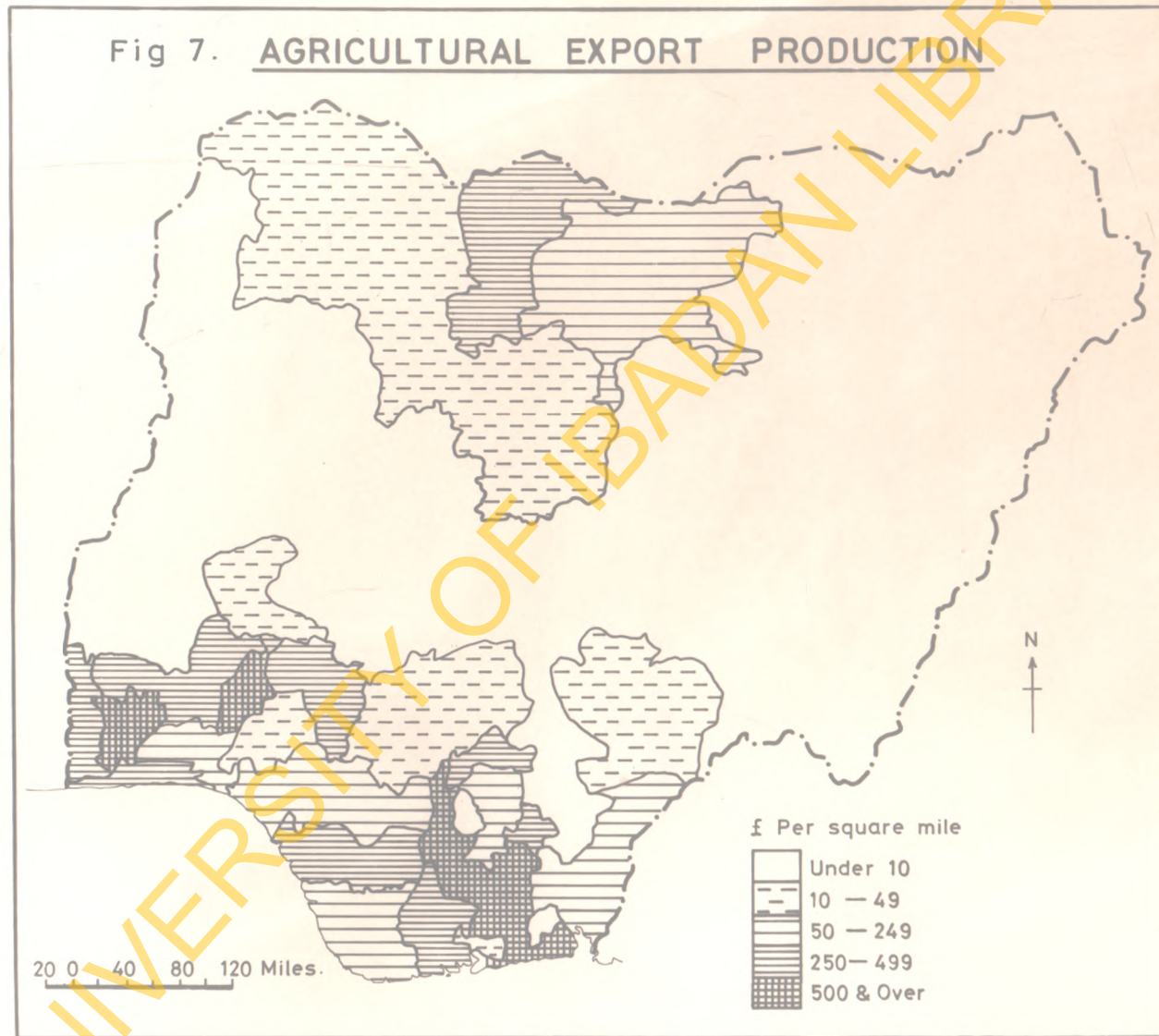


population while the Sudan zone had an average of 6.91 tons per square mile and 215 lbs. per head of its population (Nigeria: 1963).

The economy of the Middle Belt is mainly based on food crops production. The grains, root crops and fruits of both the Forest and Sudan zones are grown in the Middle Belt quite in excess of the requirements of the local population. Such grains as guinea corn (sorghum), millet, maize, acha, tamba and rice are grown in large quantities while root crops such as yams, cassava, sweet potatoes, bamba nuts and onions are also produced. Other crops which are grown are sugar cane, tobacco, tomatoes, pepper, cowpeas, water melon and fruits such as mangoes and oranges. The crops are grown in large quantities and sent into both the Forest and Sudan zones where markets are provided by the increasing population and urbanized centres. Many Middle Belt farmers show conscious preference for food crop production in view of its profitability. In fact, it will be shown later in this study that farmers realise much more money from food crops produced per unit area than from export crop production.

The report of the investigation into the regional and inter-regional movements of locally grown foodstuffs in Northern Nigeria in 1957 revealed that thousands of tons of food crops are produced in the Middle Belt Provinces and sent to other parts of Nigeria (Baldwin, K.D.S. 1957). For example, after providing for seed, food consumption, losses and wastage the report showed that the Middle Belt Provinces had a surplus of 101,000 tons of grains, 224,000 tons of yams and 2,993 tons of rice while the Sudan Provinces showed deficiency in these food crops.

Fig 7. AGRICULTURAL EXPORT PRODUCTION





Most writers on the Middle Belt have laid emphasis on the negative nature of the Belt with regard to the very little export crops produced, without taking into consideration that much of the food consumed by the population in the Forest and Sudan zones come from the Middle Belt. The fact that food crops are produced in the Middle Belt as opposed to export crops does not automatically mean that it is a negative belt in the Nigerian economy. In fact, there is a sense in which the Middle Belt can be regarded as the "granary" of Nigeria when one takes into consideration the increasing volume of food crops sent to other parts of Nigeria from the Middle Belt.

In spite of its increasing production of food crops the Middle Belt suffered in the past from processing and storage problems, poor marketing and inadequate transportation facilities in the sale of the food crops produced. Unlike the Forest and Sudan zones, where the large population concentrations provide markets for food crops locally produced, the Middle Belt suffers from lack of nearby markets, from inadequate roads and from unorganised marketing. While the Marketing Boards provide guaranteed markets from year to year for crops of the Forest and Sudan zones, markets for the food crops of the Middle Belt are not similarly guaranteed. As discussed in chapter 8, the Middle Belt farm produce is subjected to high marketing costs, irregular demand and fluctuating prices. Consequently, the farmer receives low prices for his farm produce and this acts as a disincentive to further production.

The patterns of transportation in the Middle Belt clearly show the low level of its economy in the past. The seasonally operated transport

fleets on the Niger and Benue rivers and the railway system were mainly designed for the evacuation of bulky exports from the Sudan zone and the importation of manufactured goods into the Sudan zone. Feeder roads for the railways are more poorly developed than in the Sudan zone, so that neither the railway nor river systems have appreciable effect on the local economy. Similarly, the few good roads in the Middle Belt are mainly trunk routes that connect the Sudan zone with the Forest zone and are lacking in most cases, and apart from those in parts of Plateau and Ilorin Provinces, they are poorly integrated and become impassable during the rainy season. For example, in 1969, the study area covering an area of 15,812 square miles had only 1,025 miles of all types of motor roads giving an average of 1 mile for every 16 square miles. This is in contrast to Kano Province which, with an area of 16,360 square miles had 1,829 miles of all types of motor roads giving an average of 1 mile for every 9 square miles. The lack of draught animals as a result of trypanosomiasis infection further adds to the problems of transportation in the Middle Belt. This poor development of transportation facilities is regarded as resulting in "a vicious circle in which lack of revenue has led to inadequate communications and these in turn to a strangling of the economic development that alone could provide revenue" (Buchanan, K.M. 1953: 473).

The presence of tsetse flies in the Middle Belt (especially

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1. For the study area miles of roads were obtained from the Ministry of Works, the Local Authorities and measurement of road miles on maps. Road mileages in Kano Province were obtained from Table 169 of Northern Nigeria Statistical Yearbook, 1966.



Glossinpalpalis, Gcomorbitans and Gitachinoides) causes not only sleeping sickness in human beings but also trypanosomiasis in cattle. As Gleave and White (1969: 129) have noted, the Guinea savanna vegetation offer a more favourable environment for the tsetse fly than the thorny trees of the Sudan zone. In the past, whole districts were abandoned because of tsetse infestation (Glover, P.E. 1961: 65-66). Cattle, horses and other draught animals can be reared in the Sudan zone, but they cannot be successfully reared in the Middle Belt. Apart from the highland grazing areas of Jos Plateau and Adamawa, the Middle Belt economy is not enriched by the presence of cattle. Of the 4,492,969 cattle in the former Northern Region in 1965, the Middle Belt had only 677,173 which is just 15% of the total (Nigeria: 1967). The economic implications of tsetse infestation cannot be over-emphasized. Vast tracts of potential grazing land remain unused; mixed farming is limited and the peasant farmer suffers from nutritional deficiencies as a result of lack of milk and animal protein. His health is also affected by sleeping sickness and his capacity for high productivity is thus adversely affected. The fact that draught animals cannot be kept also worsens the already poor transportation facilities, and the evacuation of farm produce has to depend on human portorage.

#### The Changing Economy of the Middle Belt

The discussion of the position of the Middle Belt in the physical, human and economic life of Nigeria reveals that the Middle Belt has a distinctive environment with recognisable problems of development. It is also a 'frontier zone' whose agricultural and mineral potentialities have been little explored. Its problems of development result from a combination

of physical and human factors, but prominent among these is the small size of its population. The problems vary slightly from area to area but it is obvious that the Middle Belt as a whole suffers from the common problems of small size of its population, poorly developed transportation and inadequate marketing facilities.

In spite of these problems, certain endogenous and exogenous factors have been operating in the Middle Belt within the last decade to turn the area from a lagging to a growing region. The population of the area is steadily rising as a result of natural increase and in-migration. The growth in the population has steadily led to increase in both the extent of agricultural land cultivated and the intensity of agricultural land use. Immigrants are attracted from both the Sudan and Forest zones as a result of the possibilities for securing farm land, opportunities for trade and secondary services in the Middle Belt. There is, consequently, an increasing flow of people and goods between this 'frontier' zone and other parts of Nigeria.

This increasing interaction between the Middle Belt and other zones of Nigeria has been enhanced by the increasing integration of the Nigerian economy. As a result of current changes in the economy and population distribution in the Forest and Sudan zones, effective demand for Middle Belt agricultural products have been created. Among the changes which could be identified are growth in population, urbanization and industrialization; gradual specialisation in production - export crops and manufactures; and growth in income. These changes were matched by an increased demand for food and change in taste particularly from the traditional



types of foodstuff - yam, cassava etc. to grains such as rice, maize and guinea corn - crops to whose production the Middle Belt is well suited and which now rival export crop production in the Forest and Sudan zones in value.

Simultaneous improvements in communications in terms of transport facilities, flow of goods, people and information between the frontier zone and other parts of Nigeria are taking place thus leading to an increased integration of the Nigerian economy. The effective demand for the products of the frontier zone has been matched by improved transportation which has the effect of lowering transport costs and making such products competitive in other parts of Nigeria as well as making production possible in formerly remote areas of the Middle Belt.

The Middle Belt has become a net recipient of population migrations with the immigrants involved in two sectors of the agricultural economy and in the service sector. One group of immigrants are involved in supplying agricultural labour and acquiring agricultural land for increased output. Another group is involved in the collection, processing and organizing the marketing of agricultural products.

The appearance of external markets for the products of the Middle Belt has the effect of raising the price of their produce and consequently the farmer's income. As the farmer's level of income increases, his felt needs consisting of few basic foodstuff, clothing and shelter change and a new set of demands arise such as the purchase of more clothing, shelter, services, durable consumer goods such as bicycles, radio etc. and the payment of childrens' school fees. The response of the farmer to

these needs (and external market demand) is to raise both his input of labour and land in order to raise his output. There is therefore a continuing shift of the farmers preferences away from subsistence production and leisure towards a commercialized production. This has the effect of raising his labour input and total output. The marked growth in the rural economic development of the frontier zone is therefore seen as partly dependent upon the resources of labour and land already existing within farming communities but not fully employed as a result of deficient demand and partly dependent on an increase in labour input and marketing organisation brought about by rising population. A similar pattern of development has been observed in the cocos growing areas of Southern Nigeria (Galletti, et. al. 1956: 328) and is regarded as a major factor in the rural economic development which took place in the areas (Whetham, E.H. 1966: 156).

The increase in output and the shift to commercialized production are leading to changes in the organization of agricultural labour, land tenure systems and techniques of production. The unit of agricultural labour and production is gradually changing from composite family units (gandaye) to individual family units (iyalai) while the individual family ownership of agricultural land is displacing the communal system of land ownership.

The technique of agricultural production is also changing from a rotational bush-fallow system to crop rotation and continuous cultivation. Small scale irrigation schemes are being established and the fadama and flood plains of the Niger and those of other rivers are being increasingly



utilized for agricultural production. Changes in crops grown and crop combinations are also noticeable with the production of such crops as rice, onion, vegetables and guinea corn on the increase. The use of fertilizers is also rising thus leading to increased yields per unit area.

The gradual elimination of the tsetse now going on in the Middle Belt, and the development of hybrid strains of cattle combining the resistance to trypanosomiasis of the dwarf Muturu cattle, with the meat and milk yielding qualities of the larger Zebu type, offer promising solutions to the poor pastoral economy of the Middle Belt. At present there is a gradual increase in the number of cattle in some Provinces of the Middle Belt while other livestock such as pigs, poultry and goats are also being reared in increasingly large numbers.

From this brief survey of the changing economy of the Middle Belt, it could be seen that the area is a 'frontier zone' whose agricultural potentialities have been little explored (U.N.F.A.O. 1965: 10). The complementarity of its economy to those of the Forest and Sudan zones is also not in doubt. The electricity from the Kainji Dam now forms the cornerstone of the Nigerian economy while the integration of the cultivation, processing and refining of sugar at Bacita demonstrate the wide-ranging possibilities and potentialities with regard to agricultural production and the development of agro-allied industries in the Middle Belt. The region's sparse population is therefore seen as offering possibilities for the promotion of rural economic development; the concept within which this is to be discussed forms the subject of the next chapter.

CHAPTER TWOCONCEPTUAL FRAMEWORK

It is generally recognised that there is some relationship between the population and resources of an area on the one hand and its economic development on the other, but the nature of this interrelationship is not clearly defined. The only clear relationship is that with economic development, the living standards of the population are raised through an increase in the per capita output of goods and services. In spite of the emphasis on the growth of output per head of population, there is still no generally accepted theory of how these changes are brought about or how economic development actually takes place. In this regard, Arthur Lewis (1955: 5) observed that "the factors that determine growth are very numerous, and each has its own set of theories".

In order to be able to predict with a fair degree of confidence the process of development in a given situation, there is therefore the need to look at the general body of economic development theories and see which are applicable to individual underdeveloped countries especially as the factors which determine their path of growth may be so different. In Nigeria, for example, although population density is high by African standards, there are nevertheless extensive areas of land only sparsely settled. As was noted in the previous Chapter, the most outstanding of such areas is to be found running as a broad zone across the middle of the country and is generally referred to as the Middle Belt. This area is characterized by low population densities, extensive empty land and



dependence on food crop production, in contrast to the Forest and Sudan zones to the south and north of it respectively, where population densities are higher, and large areas are cultivated, much of these for export crops. In selecting from the general body of theories, there is thus the fundamental need to decide on the basis of relevance.

The primary interest in this study is rural economic development. This can be defined as an increase in the average output of goods and services per head of the population leading to increase in rural income and consumption as well as to the reduction or elimination of what Hodder (1968: 4) lists as features associated with the economic and social organisation of underdevelopment. Among these features are low per capita output; subsistence agricultural production and narrowness of markets; non-diversification of economies geared to primary production; and lack of application of scientific and technological methods to agriculture. It is assumed that rural economic development requires changes in techniques of production and structural changes in the organisation of both economic and social activities. Rural economic development is thus seen as a normative concept almost synonymous with changes in institutions and attitudes which allow a given population to make greater and more efficient use of their resources (Mountjoy, A.B. 1969: 27).

Two types of theories would in particular appear to commend themselves for closer examination of the relationship between the population and rural economic development in underdeveloped areas. The first and better known is the "labour surplus" theory which assumes that low output per head of population is due to excess population on the land and thus

prescribes changes in organisations and institutions directed at creating alternative employment for the surplus labour. The second and less well-known is the "land surplus" theory which sees labour as a scarce commodity and regards the problem of development as one of increasing the supply of labour through changes in institutions, organisation and access to land such that more and more acres of land are brought into production. Both theories require to be elaborated in a little more detail in order to indicate the extent of their relevance to understanding the problems of development in the Middle Belt of Nigeria.

#### The "Labour Surplus" Theory

As early as the late eighteenth century, "classical" economists put primary emphasis on the importance of population and natural resources in achieving economic development. In its simplest form, their view was based on two propositions:

- (i) that a country's total, average, and marginal physical product will increase with increase in labour input (or population); and
- (ii) that beyond a certain level, however, any further increase in labour input (or population) will bring about "diminishing returns" to labour because of the scarcity of agricultural land and hence create conditions of labour surplus whose opportunity cost is quite close to zero.

These propositions are illustrated in the well-known diagram (Fig. 8, following Fei and Ranis 1964: 12) which shows the relation of labour to land in terms of total, average, and marginal product. The



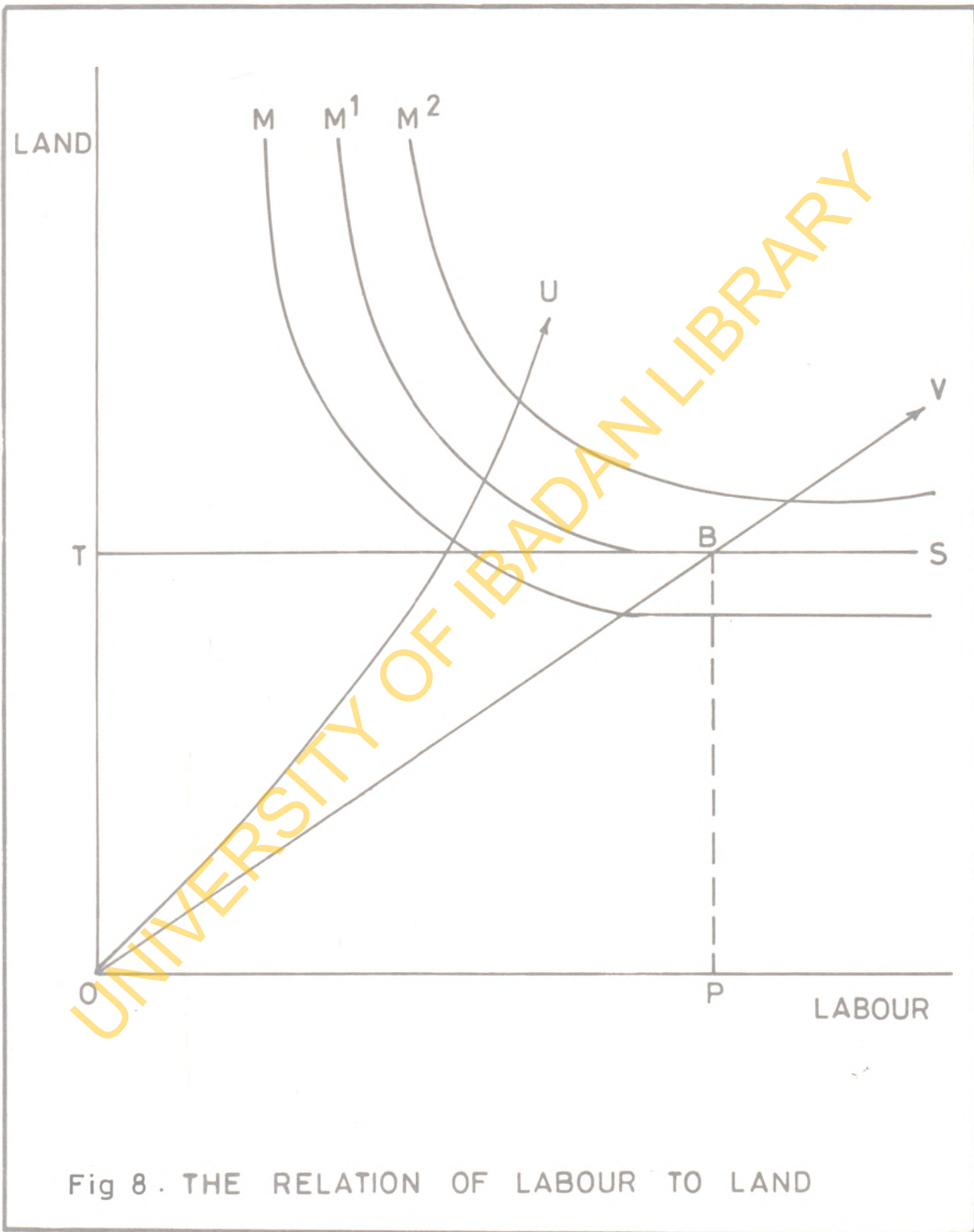


Fig 8 . THE RELATION OF LABOUR TO LAND

inputs of labour are measured on the horizontal axis and that of land are measured on the vertical axis, while the production contour lines are represented by curves indexed  $M$ ,  $M^1$  and  $M^2$ . To simplify the analysis, the usual assumptions about constant returns to scale, homogeneity of the factor inputs and fixed technology are employed. Two ridge lines  $OV$  and  $OU$  are shown marking the limits beyond which further additions of only one factor (land and labour respectively) will contribute nothing to total production. For example below the ridge line  $OV$ , the production contours become perfectly horizontal indicating that, with land held constant, any further increases of labour render that factor redundant, as output can no longer be raised.

Suppose that  $OT$  represents the fixed quantity of land in the economy. The amount of labour which can be absorbed without becoming redundant can be determined by the intersection of the ridge line  $OV$  at  $B$ . Along  $BS$  further additions to the supply of labour have no effect upon output and the marginal productivity of labour is zero. Given the stock of land  $OT$ , the non-redundant agricultural labour force is equal to  $TB$  (or  $OP$ ) units, and the redundant or surplus labour force is  $BS$  units. The situation of surplus labour would appear to have been reached in many of the underdeveloped countries of Asia where although output per acre are some of the highest in the world, they are extremely low per unit of labour. Development in such areas could be expected to occur only if some of these surplus labour were put into rural public works or encouraged to migrate to the cities thus shifting the centre of gravity of the economy from the agricultural to the industrial sector.



A number of present day theorists have attempted to analyze development within a "labour surplus" model (Lewis, W.A. 1954 and 1958 and Fei, J.C.H. and Ranis, G. 1964) and until recently the literature on the economic development of less developed countries has been dominated by this type of analysis (Myint, H. 1965 and Eicher, C.K. 1967). The model they provide conceives the underdeveloped economy as characterized by extreme population pressure on limited natural resources such that "there are large sectors of the economy where the marginal productivity of labour is negligible, zero or even negative" (Lewis, W.A. 1954). They noted that such an economy is also "characterized by the coexistence of two sectors: a relatively large and overwhelmingly stagnant subsistence agricultural sector in which institutional forces determine the wage rate, and a relatively small but growing commercialized industrial sector in which competitive conditions obtain in the input markets. The labour surplus nature of such a dualistic economy is underlined by the fact that, given existing production conditions in the two sectors, labour is a non-scarce factor". (Fei, J.C.H. and Ranis, G. 1964: 3). As capital is scarce and there is intense population pressure on the land, labourers may appear to be doing work of one sort or another, but they are so crowded on the land that if some of the labour were removed, total product would remain unchanged. This condition has given rise to 'disguised unemployment' in agriculture and is differentiated from the more open unemployment to be found in the cities of these countries. The principal concern then is to find ways of absorbing and employing productively this "surplus labour".

There is little doubt that as a theoretical construct for developing countries, this model has been too overtly influenced by the population features and social problems of Asian countries. Its relevance to the situation in Africa however needs to be more closely scrutinised especially because, as Aboyade (1969: 7) observed, the existence in the two continents of common features which are strategic to development theory formation makes it logically tempting to apply the labour surplus model equally to both of them. These common features include urban unemployment, low levels of income, saving, capital accumulation, production techniques, labour productivity and a comparable stage of economic growth (Rostow, W.W. 1959). Moreover, the model of economic dualism would appear to fit both the Asian and African cases, in the sense of a mutual coexistence of a "traditional" sector which is gradually eroded or absorbed by a "modern" sector.

The problem of growing urban unemployment in Nigeria and in some other African countries has been aggravated in recent years by the out-purging of semi-literate "school leavers" (Callaway, A.C. 1960) and superficially resembles the underlying assumption of unlimited labour supply. Moreover, there are parts of Nigeria which have historically been characterized by high population densities and whose situation thus resembles the Asian one which the labour surplus model attempts to describe. For example, in parts of Southern Onitsha, Northern Owerri and Annang-Uyo Districts of Eastern Nigeria population densities exceed 800 persons per square mile (Udo, R.K. 1963: 79). This has led to inadequate fallowing and produced "progressive degeneration" of agricul-



tural land (Buchanan, K.M. and Pugh, J.C. 1955: 105).

Nonetheless, in spite of the presence of a few such areas of surplus labour, extensive parts of rural Nigeria carry very low population densities, so that for the country as a whole the similarities with Asia are more apparent than real. Particularly in the Middle Belt (which is the main focus of this study), in Western Bornu and the Cross River Plain, man-land ratios are so low as to indicate that what is super-abundant in Nigeria is not really labour but land. The marginal productivity of labour in Nigerian agriculture is thus definitely not zero and debate continues to rage as to whether disguised unemployment ever exists at all. (Kao, H.C. et. al. 1964). In addition, dualism as conceived in the labour surplus model in respect of the interaction between a subsistence (food crop production) sector and the capitalist (export crop production and industrial) sector is no longer valid, as it neither fits the facts of the Nigerian economy today nor reflects the real essence of dualism.

While the "labour surplus" model may thus be relevant for certain countries of the Third World, it is certainly inappropriate for the less densely populated ones such as Nigeria with its different socio-economic, cultural and institutional attributes. In this regard, it is pertinent to note Myint's warning about looking for a single theory to cover all underdeveloped countries: "beyond the broad common fact of poverty it is rarely safe to make generalisations (about underdeveloped countries) without first specifying the type one is considering. .... Instead of a monolithic theory to cover all the underdeveloped countries, it will

be more fruitful to look for alternative theoretical models to suit different kinds of underdeveloped countries" (Myint, H. 1964: 14).

### The "Land Surplus" Theory

As a result of the dissatisfaction with the universal applicability to Third World countries of the "labour surplus" model of development, Helleiner, for instance, provides an alternative proposal based on the simple recognition that what is super-abundant in some of these countries is not really labour but land (Helleiner, G.K. 1967). With regard to Nigeria, Wolfgang Stolper had also in an earlier study observed that "the theoretical problem is 'development with unlimited supplies of land' a variation, with a bow to its famous author, of W.A. Lewis' well-known title". (Stolper, W.F. 1966: 18).

These authors argue that the real problem of development in Nigeria is that of raising labour productivity through mobilizing underutilized land rather than of mobilizing underemployed labour. Fig. 9 indicates briefly the essence of their alternative model. The diagram shows again a conventional relation between physical output and labour. The inputs of labour (actual or potential) are measured along the horizontal axis and output on the vertical axis. Land is redundant and there are no diminishing returns up until point E on the total product curve OD. Further additions to the labour input beyond F yield no extra output. At all points to the left of the intersection of OD and OG, there is a mobilizable surplus which is the result of preference, such that demand falls short of capacity. For example, if the available force is given by OJ, it will be content to produce and consume only HJ although it is



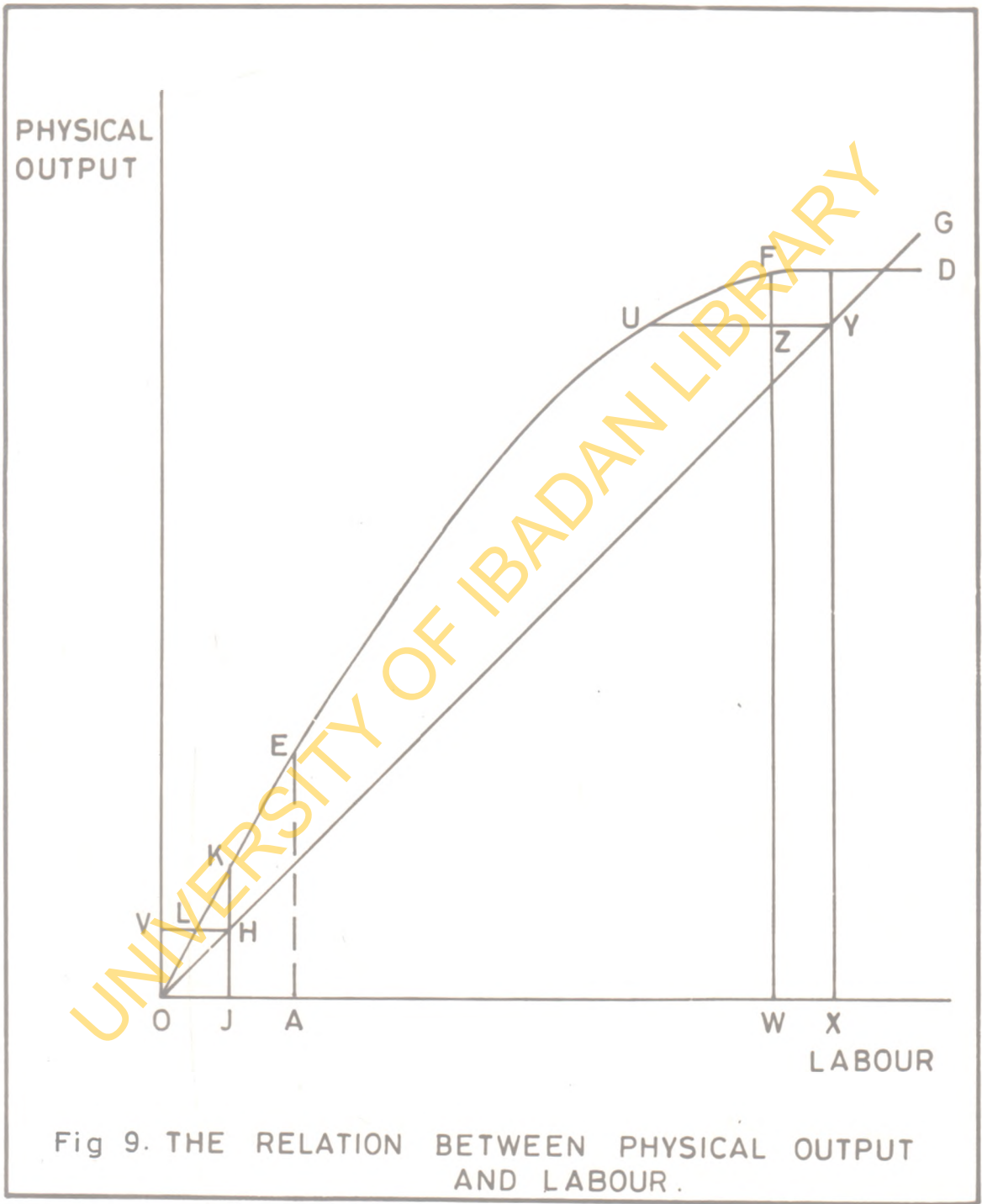


Fig 9. THE RELATION BETWEEN PHYSICAL OUTPUT AND LABOUR.

capable of producing JK. There exists a surplus of HK in terms of potential output or LH in terms of labour, since VL is all the labour which is needed to obtain an output of EJ. It is clear that the marginal product of labour in this range is high; yet LH of labour remains unemployed (Helleiner, G.K. 1967: 186).

This "land surplus" model characterizes the country as having a considerable (potential) "agricultural surplus" consisting not only of unutilized land but also of unutilized labour, which could be mobilized for the expansion of material output. The labour component of this surplus, however, differs conceptually from that in the "labour surplus" economies especially in terms of its marginal value and opportunity cost. According to Helleiner, "the mobilizable man-hours of labour in a land surplus economy have a positive marginal product in agriculture; they are unemployed as a matter of conscious preference for leisure over additional material output, at prevailing prices and the existing level of technology. Their unemployment is not the result of their inability to raise material output with further increases in labour inputs. Basically, it is the result of deficient demand for their material output" (Helleiner, G.K. 1967: 185). With increasing demand and higher prices for his products, peasant farmer responds by increasing his labour inputs, and given the abundance of land, the increased labour inputs could be matched in successive stages by increased land inputs, leaving the existing techniques of production unchanged. The higher incomes (through better prices but mostly through greater output) received by such peasant farmers have a radiating effect on the rest of the economy, especially, as transport



and distribution facilities are improved and reach more and more to remote areas.

Operational Basis for the "Land Surplus" Model

In a 'land surplus' economy certain endogenous and exogenous factors must be operative before rural economic development occurs. These factors must also operate in a mutually reinforcing way if they are to induce growth in the economy, bring about changes in the organization of agricultural labour and land, in the intensity of land use, types of crops grown, marketing and transportation facilities as well as in the flow of goods, information and people between the land surplus area and the rest of the country. Among these factors could be identified the following:

- (i) increasing monetization of the economy;
- (ii) steadily rising population through natural increase and immigration;
- (iii) development of transportation facilities leading to increased accessibility within and to other areas;
- (iv) changes in socio-economic organisation and attitude as a result of internal growth and stimulus transmitted from outside the area;
- (v) the integration of the area with more developed regions such that effective demand is created for its products (agricultural produce) and greater interaction is enhanced between it and the outside area.

The overriding significance of these factors is revealed in

examining the importance attached to food crop production (usually described as subsistence agriculture) in the labour surplus model of development. Many writers (U.N. 1959: 8-12) on economic development especially those belonging to this school of thought emphasize the dual nature of the economy of underdeveloped countries, distinguishing between the "traditional" or "subsistence" (export crop and industrial production) sector. It is claimed that in this type of economy it is the modern sector (through export crop production) which experiences growth while the traditional (food crop production) sector is 'stagnant' (Lewis, W.A. 1967). In consequence, the economic significance of different parts of a country is judged simply by its ability to produce export crops. Rarely is it conceded that the demand for food crops could become such that the marginal return per unit of labour in its production input can be equal to or even higher than that from export crop production. Furthermore, such an eventuality by forcing food prices to rise sharply makes food production able to bid effectively for various factors of production, and therefore to move more effectively into the modern and capitalist sector. However for this to happen, two circumstances appear to constitute necessary and sufficient conditions.

The first is the growth in other areas of production of certain commodities which are more rewarding than that of food and whose exchange ratio for the areas concerned are greater than unity. Hence as such areas come to specialise in producing these crops to the neglect of food commodities, they would have to turn to other region for their food supplies. This development is often accelerated especially if the specialization



is accompanied by increasing growth in urbanization and manufacturing industries. Secondly, such regional interaction cannot develop without the establishment or improvement of transportation and marketing facilities. For it is only when such spatial links have been established between the regions that the principle of complementarity (Ullman, E.L., 1956: 865) necessary for spatial transactions can become operative.

These two exogenous factors are indeed the sufficient conditions often noticed in the transformation of a frontier zone. They need, however, to be supplemented by other conditions usually of an exogenous kind. The latter include, for instance, the increasing monetization of the local economy through such means as the imposition of taxes, the introduction of imported manufactured goods, which can only be bought for cash as well as the commutation of services such as bride dowries and house repair. This factor of monetization quickly transforms rural production into commercialized activities and food crops come to be increasingly produced for exchange as well as for subsistence. This tendency becomes self-reinforcing and leads to a general upward trend in rural production activities.

The rise in the tempo of activities tends to lead to a steady increase in population size. This in turn becomes a major factor in further determining the rate of rural economic development. Clark (1963: 253) notes that "population increase usually leads to changes both in methods of cultivation and in social and economic relationships which are capable of greatly raising the return per unit of labour input". Moreover, such a steadily rising population becomes a major source of

labour input essential for the expansion of the area cultivated as well as in increasing the intensity of land use. Increase in rural population could also lead to the evolution of new systems of land tenure particularly that of individual ownership of farmland which could promote investment in agricultural land and greater intensity of land use.

In a pre-monetized, subsistence economy, communities are bound to find themselves self-sufficient only to the extent of what they produce. As the population grows and the economy becomes monetized, commercialized production expands simultaneously with improvements in communications and social services as well as changes in the techniques of production. In the case of the frontier zones of the United States, for example, Douglas North (1955: 243-58) has shown how this pattern of development depended on population growth followed by the development of the resources through improvements in the techniques of production and infrastructure as well as the growth of services to serve the population.

It is therefore assumed that the land surplus area is a "low growing" zone of an underdeveloped country which is a net recipient of population migrations and which is characterized by changes in the organization and techniques of production (Okun, B. and Richardson, R.W. 1961: 134 and Mabogunje, A. 1970: 245-6). The immigrant component of the rising population constitutes an important group in the economy. It is the immigrants who introduce new techniques and organization of production as well as new crops thereby leading to a greater intensity and diversification of agricultural production. The immigrant component could also increase the level of both internal and external trade by being involved



in the collection, processing, marketing and exchange of products between the frontier zone and outside areas. Their presence generates an increased flow of information, goods and services between the frontier zone and outside areas. By providing the initial outlay essential for the exchange of products (in terms of marketing organization and transportation) and by their knowledge of the market of the external sector, the immigrant population could stimulate increased labour participation in production and effective demand for the products of local industries (agriculture) from the external sector.

The expansion of agricultural production stimulates the development of some processing industries as well as further improvements and expansion of the transportation network (Baldwin, R.E. 1964: 242). The improvement of these facilities increases accessibility to more and more remote areas and further stimulates the expansion of agricultural production, thereby leading to increase in total production and exchange between the frontier zone and the external sector. The entrepreneurship and amount of capital required for organizing the marketing and providing the transportation facilities for the export of agricultural production are supplied comparatively readily by the immigrant population who are subsequently joined by traders within the frontier zone. Not only are the marketing and transportation industries directly tied to the agricultural export industry and, consequently, are particularly attractive to immigrant investors, but also they are organized on a large enough scale to take advantage of the established market in the external sector.

The dynamic implication of the 'land surplus' model, particularly of

changes in technology of production, has not been considered so far in the discussion. The assumption of a fixed technology does not fit the changing economy of a frontier zone and, as Baldwin (1964: 250) has observed, technological change is a major factor in the economic development of newly settled regions. It is possible to achieve higher yields per input of labour/acre under conditions of changing organization of land and labour for agricultural production; in farm investments leading to greater intensity of land use; in the use of improved varieties of seeds; and in the development of better storage facilities and more efficient crop marketing systems. Within a frontier zone, changes in the techniques of production are to be expected particularly with inflow of labour and capital and changes in socio-economic organization.

Given the operative basis for the "land surplus" economy it is expected that changes are taking place in the economy in terms of increasing commercialization of economic activities in such a way as to promote rural economic development. Among the changes to be expected are those in the organization of agricultural labour, system of land tenure, pattern of land use, and pattern of transportation and marketing of agricultural produce. All of these changes and their interaction tend to induce a faster and more balanced rural economic development.

#### Objectives of the Study

As stated in chapter one, this study is intended to analyse the process of rural economic development of a part of the Middle Belt of Nigeria within the concept of the "land surplus" model. In this regard, the specific objectives are two-fold:



- (i) to determine the factors responsible for bringing about rural economic development in a part of the Middle Belt of Nigeria; and
- (ii) to discuss the implications of the factors for the rural economic development of the Middle Belt of Nigeria.

In view of the overall importance of agriculture in the economy of the Middle Belt, the discussion of rural economic development is focussed on agriculture with emphasis on agricultural labour and land, socio-economic organisation in agricultural production, marketing and transportation facilities for agricultural produce. This is in recognition of the fact that the agricultural sector constitutes the foundation for any sustained economic expansion of the economy and in support of Brokensha's claim that "any increase in the standard of living, as well as any substantial progress towards industrialization, depends on an increase in agricultural output" (Brokensha, D. 1965: 2).

#### Methodology and Data Collection

The field work for this study was carried out mainly from August 1968 to August 1969. Such a long period of field research was necessary in view of the nature of the investigation, and the special need to enlist the interest of the different local administrations (The Provincial and Divisional Administrations, and the six Local Authorities) whose cooperation was essential to such an exercise. The size of the area covered, the multiplicity of languages in the study area, as well as the need to study closely the annual cycle of agricultural activities are contributory factors to the need for a fairly long period of field research. The

method of approach in the investigation was a combination of the following:

- (i) All available published or written materials and maps on the Middle Belt and Niger Province (particularly on Bida and Minna Divisions) were consulted as well as relevant documents on the former Northern Region of Nigeria. Particularly useful were the Annual Reports and other files of the various Local Authorities and the Assessment Reports (counterparts of Intelligence Reports in Southern Nigeria) written on the various districts by the old Colonial Administrators now deposited at the National Archives, Kaduna. Documentary sources were however limited and fragmentary in nature and much reliance has therefore been put on data collected on the field.
- (ii) Extensive travels and observations of the physical and cultural landscape and economic activities throughout the area of study and in other parts of the Middle Belt.
- (iii) Sample surveys of the agricultural economy in randomly selected settlements within the study area.
- (iv) Interviews including the use of questionnaire; and
- (v) Detailed survey of six case study Districts illustrating contrasts in the demographic and socio-economic characteristics of the population, economy and transportation. The six Districts were chosen in such a way as to enable contrasts to be made between (a) densely and sparsely populated areas;



(b) different tribal groups; (c) lowland and upland economies and (d) areas of contrasting development in transportation and marketing facilities. On these bases the following Districts were chosen (Fig. 1): Mokwa and Kwangoma Districts in the areas of low population densities; Diko and Paiko in medium population density areas, and Jima/Doko and Katcha Districts in areas of high population density. Farmers were interviewed in the following main settlements within the Districts:

Mokwa - a road-side Nupe settlement in a sparsely populated District with upland economy based on yams and grains. It lies on the Jebba-Kaduna road with heavy through traffic as well as on the Jebba-Kaduna rail line. Mokwa was the headquarters of the defunct Niger Agricultural Project (Baldwin, K.D.S., 1957) and at present has an Agricultural Research Station and a Cattle Ranch on the former Project site.

Fandozari - a settlement comprising of Urrawa, Kamuka and Hausa tribal groups and other immigrant groups is also a road-side settlement on the Jebba-Kaduna road. It has an upland economy based on grains and yam cultivation and by virtue of its location on the main north-south road, has some roadside services such as vehicle repair, and food canteens.

Diko - a Gwari-Genge settlement in the medium population density area with upland economy based on yam cultivation and served by a poorly maintained seasonal motor road. Christian Missionaries have been very active in the area since early 1930s.

Paiko - a Gwari-Nkwa settlement in the medium population density area served with an all-season laterite road. The economy is based on yam and grains cultivation.

Doko - a Nupe settlement in the area of high population density with a lowland economy based on rice, onion, pepper and sugar-cane production in the fadama. It is served by an all-season laterite road and is also a major Christian Missionary Centre in Nupeland.

Katcha - a Nupe settlement on the River Niger with many Yoruba and Hausa immigrant groups in the area of high population density. Its economy is based on the cultivation of rice, onion and sugar-cane on the fadama as well as on the Niger flood plain with potentialities for irrigation agriculture. It is served by the Minna-Bare railway line, an all-season laterite road and River Niger route-way. In addition to agricultural production and fishing on river Niger it is a major market centre for agricultural produce and imported products.

Within the six case study Districts questionnaires were administered to a total of 215 heads of households randomly selected from the list of tax payers obtained from District Heads. The unit of investigation was the household or farming unit which is a separate unit of domestic economy with a single head (head of household - mai gida<sup>1</sup>), a common production and consumption of food, a common set of farms, granaries

1. Hausa is the common language in the study area and it has become the local administrative and commercial language so that most of the socio-economic organisations are expressed in Hausa. Hausa words as well as their Nupe or Gwari equivalents used in the text are underlined.



and a common cooking pot (tulamya). The household or farming unit is defined in the case of this study as "those persons eating from the same pot" and it was assumed that such a group constituted an economic unit. In all, a total of 1,970 persons were involved in the 215 households.

The questionnaires were designed to record the age, sex, tribe, religion, education and occupation of every member of the household interviewed. Questions were asked about size of farms, land tenure system, intensity of land use, crops grown, farm income and investment as well as farm crop marketing. Farmers' farms were visited several times to collect information on farm sizes, land use, cycle of farming activities, crop yields, crop storage and marketing. In addition to the administration of questionnaires, extensive travels were undertaken in the study area and contrasts in population distribution and economy observed.

In discussing the size, distribution and density of the population, the 1952 Population Census was used in view of its greater acceptability in preference to the 1963 Population Census. The 1931 and 1952 Population Censuses as well as the annual tax assessment population censuses were used in discussing the growth of the population.

CHAPTER THREETHE DISTRIBUTION AND DEMOGRAPHIC ANALYSIS OF THE POPULATIONThe Population Size and Distribution

The relation between population size and rural economic development in the study area is a subject which has bearing on optimum population theory. The question of whether a given population is smaller than one yielding maximum per capita output as well as per unit area output is difficult to answer in any concrete term. One of the fundamental difficulties is that the shape of the curve relating output to the labour force or to the size of the population depends on the available techniques of production, which in turn depend on what skill the population possesses (Coale, A. J. and Hoover, E. M. 1958: 18). In addition, the areal extent of land itself does not indicate its carrying capacity as far as rural production is concerned, for other factors such as soil fertility, accessibility and socio-cultural factors of land ownership and land utilisation are crucial. The fact that 'vacant' land may not be available or suitable for production further complicates the question of whether or not a given area is yielding maximum output per unit area. The dynamic nature of population distribution and growth as well as of techniques and organisation of production further limits the extent to which optimum population theory can be applied to the study area.

Despite all these limitations, however, an attempt will be made later in the study to calculate the critical population density



(CPD) as an indication of the size of population that could lead to a maximum utilisation of the resources and a maximum output per unit area given the present land-use systems. It would also show that the question with regard to this part of the Middle Belt, as compared with the more densely settled areas of the Forest and Sudan zones of Nigeria, is not a question of 'labour surplus economy' - a situation in which there are too many people working on land which is in 'fixed' supply. It is one in which much of the land is yet to be made productive through an increase in the labour force (population) or through other co-operant factors such as modification in existing land tenure system, changes in techniques of production and improved transportation and marketing facilities. With the limited quantity of capital available and the present level of technology and cultural methods of rural production in the Middle Belt, the population in its present size and composition is not capable of fully utilizing the resources of the area.

The population of the study area was given by the 1952 Census as 464,458, distributed over an area of 15,812 square miles. This gives an overall population density of 29.4 persons per square mile with the densities varying from 8 persons per square mile in Alawa District to 84 in Katcha District (Table 5).

On the basis of land use and degree of commercialization of the agricultural economy, three population density zones shown in Fig. 10 are recognised and these have been classified into; (i) districts with low population densities under 25 persons per square mile; (ii) districts of medium population densities ranging between 26 and 50 persons

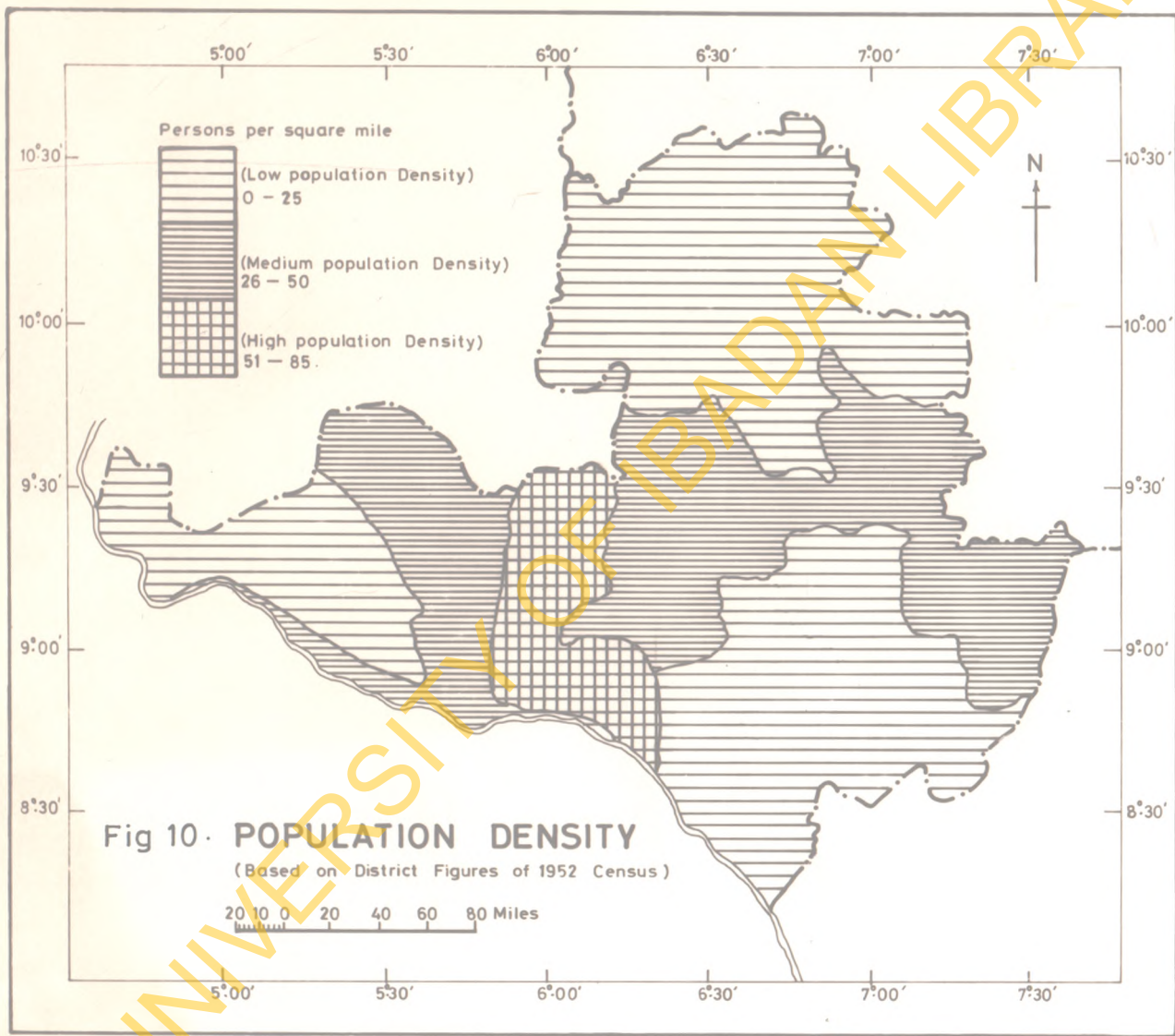




TABLE 5: DISTRICT POPULATION DENSITY

(a) Low Density Districts				(b) Medium Density Districts				(c) High Density Districts			
Administrative Districts	Area in sq.mls	* Population	Density per/ml. <sup>2</sup>	Administrative Districts	Area in sq.mls	* Population	Density per/ml. <sup>2</sup>	Administrative Districts	Area in sq.mls	* Population	Density per/ml. <sup>2</sup>
Alaua	842	6,854	8	Kede	647	17,261	27	Lema	698	37,481	54
Kusheriki	293	3,727	13	Kwali	717	19,771	28	Jima/Doko	283	22,699	80
Kwangoma	253	3,451	14	Buzri	622	26,652	52	Katcha	232	19,369	84
Gann	369	5,459	15	Badoggi	451	15,325	34				
Holma	1,546	23,273	15	Katigi	1,199	40,138	34				
Kagara	679	12,693	19	Ureggi	105	3,656	35				
Iepai	1,340	28,030	21	Abuja	211	7,664	36				
Galedima-Kogo	868	18,844	22	Faiko	556	22,894	41				
Kuta	1,081	23,400	22	Keffin-Koro	652	16,486	45				
Agai-S. (Kintako)	482	10,625	22	Agai N. (Mintifi)	335	15,336	46				
Kuje	592	13,832	23	Bosso	559	15,184	47				

+ Excluding Bida and Minna Town Districts.

\* Based on 1952 Census.

per square mile; and (iii) districts of high population densities varying between 51 and 85 persons per square mile. This classification into three population density zones does not reflect the carrying capacity of the land as they are located in areas of apparently similar physical environment. The classification reflects mainly the relationship between population densities and degree of rural economic development which is discussed in subsequent chapters. As Barbour has observed, a knowledge of population densities is of great importance in discussing the economy of a place as useful comparisons within such areas could be made (Barbour, K.M. 1961: 112).

#### Low Density Districts

These are areas with under 25 persons per square mile and are found in the Districts to the north and west of the study area as well as in the extreme south-east. Densities vary from 8 persons per square mile in Alawa District, to 15 in Noko, 22 in Kuta, Galadima-Kogo and Agai-South (Kintako) Districts. Table 5 shows that the 11 districts where population density is lower than 25 persons per square mile cover an area of 8,345 square miles, (about 53% of the study area) but carry only 32.5% of the total population. Settlements here are few and far between, while they are also very small in size. Isolated hamlets are the most common of the settlements while there are large expanses of land which are virtually unoccupied or put into any productive use. (Fig 11).

The present sparse population resulted from the slave raids of the late 19th century as the Fulani Raids of Bida, Yauri and Kontagora, particularly the latter, laid the country waste by their slave raids.



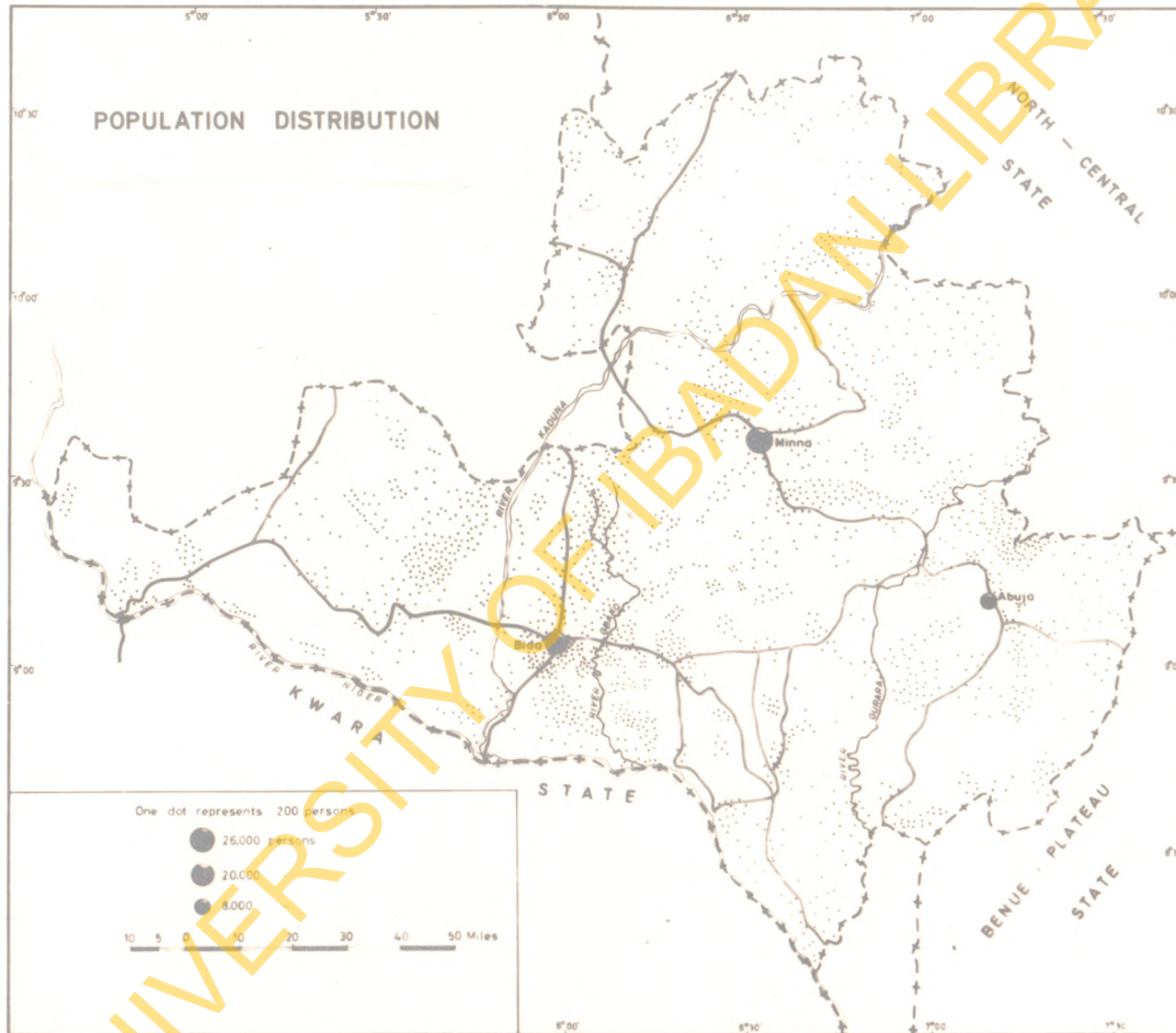


Fig 11 .

The areas to the north and southwest of the study area has not fully recovered from the devastation to which its population was subjected. This is clearly recorded in the Gazetteer of Kintagora Province which states that the people were "bitterly oppressed, harried on all sides, continually raided for slaves" and "were being exterminated to such purpose that it will take half a dozen generations to repopulate the country" (Duff, S.C. 1920). The ruins of towns and villages in these areas show the degree of depopulation that took place and it would take some time to reach the magnitude of the pre-slave raid population.

The sparse population has affected the economy as, for example, the virtually uninhabited areas have become breeding places for tsetse flies thereby reducing their suitability for cattle rearing. The areas are also associated with poor communications and poorly developed marketing facilities as well as lack of sustained demand for locally grown agricultural produce. These have limited the extent of rural economic development that has taken place. There is however the advantage of plentiful supply of agricultural land and many farmers from the densely populated areas of the Sudan zone now migrate into the areas thus leading to increase in agricultural production.

#### Medium Density Districts

These Districts have population densities ranging between 26 and 50 persons per square mile and comprise 11 Districts of the study area located to the east and central parts of the study area. The densities vary from 27 per square mile in Kede District along the valleys of Rivers Niger and Kaduna to 36 and 46 in Abuja and Kintifi Districts respectively. These areas owe their moderate density of population to two main factors.



In the first place, some of the Districts were centres of Fulani settlements during the slave raids, used as war camps and after the slave raids as estates or farm settlements of the nobility. Examples of these are found in Kutigi and Badeggi Districts in the old Nupe Empire and at Abuja, Gwari and Kwali Districts in the old Zazzau Kingdom. These centres provided refuge for large numbers of people and after the pacification of the country the population concentrations persisted. Rural population densities are also high in these areas owing to the founding of many villages 'tunga' (Nupe) - "farm settlements of individual landlords" around the District headquarters (Nadel, S. F. 1942: 36).

Another factor which has favoured the moderate population densities is the monetization of the economy following the construction of roads and railways and the consequent attraction of people to sites near the communications centres. People moved in so as to secure paid employment or alternatively to grow farm crops for the increasing population of these centres, as well as to export such crops to other parts of the country. The moderate population densities of 47 and 41 per square mile in Besse and Paiko Districts respectively around Minna can be traced to the early period of this century, after the founding of Minna as an administrative and transportation centre. Many Gwari moved into these Districts from Galadima-Kogo and Kuta Districts to avail themselves the new opportunities opened for wage employment and sale of farm produce at the urban centre of Minna. Badeggi District in Bida Emirate also benefited from this influx of population as a communications and market centre on the Minna-Bare railway line. Badeggi is also a centre of agricultural activities with a thriving rice production based on irrigation; it

contains also the Federal Rice Research Station which provides employment opportunities for the people. Kwali District in Abuja State with a density of 32 to the square mile also owes its population to the protection offered by Abuja as well as to the development of yam production on a large scale following the opening of the Abuja-Koton-Karifi road and the development of Gwagwalada as a market centre for yams and other agricultural products.

These two factors are now mutually reinforcing each other as the former refuge camps and settlements have become centres of population, communications and marketing. The Districts which owe their relatively high population densities to the development of communications and marketing facilities have become centres of population concentration, craft and agricultural development.

The major centres of population concentration and their surroundings show discrete tribal and ethnic groupings. People of the same tribal origins inhabit adjacent areas with large expanses of land separating them. For example the population concentrations in Bosso and Fako Districts near Minna consist mainly of Gwari Yoruba while to the east of Kuta and Fako districts an uninhabited expanse of land separates another population concentration of Kafa-Koro tribal group. Similar distribution patterns are found in other parts of the Middle Belt to the South of the Niger where large expanses of unoccupied land separate one tribe from the other (Agbeola, S.A. 1968: 292). An exception to this is however found in settlements around Abuja town where Gwari, Ija-Koro and Hausa of Zazzau (Zaria)



origin occupy the same settlements, though the different tribal elements live in separate quarters or wards of the settlements as at Gwagalada.

Settlements in these districts are larger than those of the low density districts though they are not as closely spaced as those of the high density districts. In these districts are found 20 settlements with over 2,000 people and 17 settlements with over 3,000 people while at Zaba in Kwali District of Abuja Emirate 5,569 people.

The settlements remain predominantly rural though a few of them such as Badeggi, Gwagalada and Paiko have grown up as market centres with limited urban services. Communications, marketing and an economy based on commercial production of food crops have developed in these districts with moderate population density in contrast to the districts of relatively sparse population.

#### High Population Density Districts

Population densities within high population density Districts range between 51 and 85 persons per square mile and are found in the three Districts surrounding the Nupa capital of Bida to the east of River Kaduna known as 'Cis-Kaduna' Districts. The three districts of Loma, Jima-Jala and Katcha represent the greatest concentration of population in the study area and carry 21.4% of the population on 8% of the total land area. The three districts have densities of 54, 80, and 84 persons per square mile and owe their population concentration to the historical fact of the Fulani conquest of Nupeland. It was in these three districts that the main settlements of the Fulani rulers were founded and their numerous towns and villages built. As a result

of the protection from slave raids offered by the stabilising power of the Fulani rulers, the districts continued to attract refugees from the areas subjected to slave raids. With a large concentration of population and security of life, agriculture, crafts and trade developed in these districts and with the pacification of the country early in this century, the population concentration became stabilised. Many of the alien groups who settled either as slaves or refugees now live among the Nupe people and in many villages and towns in these districts are found groups known by the name of Konu, (prisoners of war) Evaci-Nupe, (Yoruba Nupe) Hausa and Ghari bauta (i.e. Hausa <sup>and</sup> Ghari slaves). These groups living in Nupe country are hardly distinguishable today from the people among whom they live as they have become assimilated in speech and dress (Hadel, S.F. 1942: 20).

The population distribution in these densely populated districts has some distinguishing characteristics:

- (i) Population densities over extensive areas are very high and around the district headquarters densities of 200 to 300 persons per square mile are attained. This is particularly obvious in areas between Lemu, Bida, Badeggi and Doko. Fairly large settlements are found and it is in these districts and the neighbouring districts of Kutigi, Kede and Badeggi that settlements with 2,000 or more people are concentrated.
- (ii) The districts are closely settled, for unoccupied areas are limited in extent and even hill-sides as at Doko are occupied and intensively cultivated. Forest Reserves are few, and where they exist they are small in area as in Jima/Doko and Katcha Districts where forest reserves cover only 5.8 square miles and 2.3 square miles representing 2% and 1%



respectively of the total land surface. In contrast to this, forest reserves in the sparsely populated Districts of Moku and Alawa cover 207.2 square miles and 119 square miles representing 13.4% and 14.1% of their total land surface respectively.

(iii) The population is predominantly rural, distributed in numerous villages with none of the villages having over 5,000 people. The Nupe practice of founding "daughter settlements" called tuwa, which are expansions of mother-towns or villages further help to spread the population over the landscape. There are near-continuous settlements, as one sees in Kano area, along the Bida-Badeggi-Katcha and Bida-Doko-Jima roads and also along the railway line from Kataregi to Katcha. In addition, there are farm settlements or 'estates' - of the nobility, (also called huga) who own large tracts of land that are parcelled out to people who live on them as tenants. These huga settlements are scattered all over Cis-Kaduna and surround Bida in a dense belt, making for intensive agricultural use of the land.

one of the consequences of the high population densities is that family ownership of land, and in some cases individual ownership of land, is the rule. (This development and its effects on agricultural development are discussed in chapter 5). A network of roads and marketing facilities has been developed, which is in sharp contrast to the situation in the sparsely populated Districts with communal system of land ownership, few roads and markets.

#### Changing Patterns of Population Distribution

From the discussion of the population distribution of the study

area, it has been shown that the population density is generally low and that the population distribution shows considerable response to historical factors. Changes in the population distribution have, however, been taking place in the past 20 to 30 years as a result of socio-economic factors. As people tend to sort themselves out areally in order to attain efficiency in performing their roles as producers and as consumers of goods and services, the population distribution in the study area is gradually undergoing changes in response to certain socio-economic factors particularly the gradual development of modern communications and the increasing commercialisation of the economy.

The completion of the construction of the railway lines in the study area in 1912 - (the Jebba-Minna-Sarkin Pawa and Minna-Baro lines) saw the springing up of small villages along the railway lines. People moved in from the outlying inaccessible areas to take advantage of the transportation facilities provided by the railways. This led to the development of 26 sub-stations in the Jebba-Minna-Sarkin Pawa line and 7 sub-stations in the Minna-Baro line and the stations along the lines such as Mokwa, Minna and Badeggi have become major centres of population concentration and trade.

Of greater effect on population distribution in the study area has been the development of motor roads. Along the Jebba-Kaduna road, Mokwa and particularly Pandegari have become major centres of population concentration, trade and road-side services. Following the building of a bridge over the river Ussuman on the Abuja-Koton-Karifi road, many ribbon settlements sprang up between Madalla and Gwagwalada and the



bridge-point, which became a major market centre for yams sent to the south via Koton-Karfi and Lokoja. Along the Bida-Doko-Jim-Nuregi roads, many settlements such as Kuchi Wero (meaning new Kuchi, an off-shoot of Kuchi on the hill-side), Pa Ginko, Kusogi, Najidodo and Danchitagi have been founded within the past ten years and these have become major centres of rice production and marketing.

The existence of water-ways on the rivers Niger and Kaduna has led to the founding of many Kede settlements along the river banks. The Kedes are mainly fishermen and transporters along the river courses and here we see the economy and way of life of the Kede people influencing the distribution of population.

The increasing commercialisation of the rural economy of the study area is having an impact on the population distribution. The increased demand for rice in other parts of Nigeria has led to many farmers settling in the plains and river valleys as well as near the fadamas that are favourable to rice production. Irrigation schemes have also been established in 17 places in the riverine areas and the schemes at Idochigi and Badeggi have been very successful and continue to attract more settlers. There is therefore a gradual movement of population from the plains to the lowlands particularly to the south-west and south-east of Bida along the flood plains of Rivers Kaduna, Niger and Chako. The production of guinea corn and yams in Minna and Abuja areas for the southern and northern markets also encourage people to settle along the roads where such products can easily be evacuated.

The development of roads and increasing commercialisation of the local economy have attracted traders and even farmers from other parts of Nigeria into the study area. Along the major roads and marketing centres such as Mokwa, Kutigi, Badeggi, Paiko, Gwagwalada and Dwari can be found Hausa and Yoruba traders from the Northern and Southern parts of Nigeria engaged in trading in agricultural and imported products. In addition, there are Hausa farmers engaged in onion, cassava and sugar-cane production in the fadama as well as Hausa fishermen, particularly from Sokoto and Kano (Wudil) area who settle along the river valleys.

Three types of population movements could therefore be recognised as leading to changing patterns of population distribution as well as major factors in the rural economic development of the Middle Belt: (i) Movement of populations induced by the development of transportation routes from remote and inaccessible areas to where motor roads, railway lines and water-ways have been developed; (ii) Movement of population to the lowlands, river valleys, fadamas and to areas where rice, yams and guinea-corn can be grown in commercial quantities and where facilities for transporting them to the southern and northern markets exist, and (iii) The general pattern of migration in Nigeria to areas with relatively low population densities as observed by Nabogunje (1970: 13) whereby considerable movement of people into this area of the Middle Belt take place from the southern and northern parts of Nigeria. Thus the Middle Belt has become a net recipient of population migrations and the immigrants settle down as farmers, fishermen, traders and artisans.

By Dept. of Geography (1981), p. 10. The only and largest library in this country will therefore have in their wish to be identified



### Tribal Distribution

The study area is characterised by a multiplicity of tribes and the Gazetteer of Nupe Province (the former Provincial name of the study area excluding Abuja Emirate) listed 17 indigenous tribes and sub-tribes in the area apart from the immigrant Fulani, Igbirra and Yoruba tribes (Dupigny, E.G.N. 1920: 70). In addition to this, the Niger Provincial Gazetteer named two other tribes - the Gade and Gwandara (Hassan, M. & Smith, P.F.N., 1941: 29) in Abuja Emirate bringing the total number of indigenous tribes to 19. These tribes range from 506 Kaderas to the sixth largest tribe in Northern Nigeria the Nupe and its sub-tribes which totalled 187,656 in 1920 in the study area. Tables 6 (a) and 6 (b) show the tribal population figures for the study area in 1920 and 1952 respectively.

The 1931 Census listed 14 indigenous tribes in the study area but subsequent population censuses and Local Authority tax Censuses since 1931 have given less details of the tribal distribution of the population. Since 1931 there has been a tendency to group all the tribes under the five main tribal groups in the study area - Nupe, Gwari, Hausa, Fulani and Kamuku. There is also a tendency for the smaller tribes to be absorbed by the larger or ruling tribes. For example, the Kanuri (Benu) tribe of Kutigi District in Bida Emirate have become Nupe-ized and abandoned most of their original cultural traits and embraced Nupe language and culture, while the former Gwari Slaves of the Nupes, Ghari hanta, in Kataregi have also been absorbed by Nupe culture (Nadel, S.F. 1942: 30). The Gade and Gwandara tribes in Abuja Emirate now call themselves Hausa in their wish to be identified

TABLE 6(a)

## TRIBAL POPULATION FIGURES (1920)

Tribe	Population	Tribe	Population
Nupe	137,149	Kede*	4,445
Gwari	57,546	Bauchi	3,655
Bini*	21,266	Koro	2,391
Bassa	15,756	Fulani	2,285
Hausa	14,365	Kalcanda*	1,956
Ganagana*	13,564	Yoruba	1,090
Kamuku	12,515	Ngwo	1,062
Igbirra	12,216	Keturi	1,056
Batachi*	8,770	Ura	605
Gupa	7,289	Kadera	506
		Total	319,465

\* Nupe Sub-tribes.

Source: Dupigny, E.G.H. 1920: Gazetteer of Nupe Province, (London), p. 70.

with the ruling Habe-Hausa of Abuja and have adopted Hausa as their principal language.

In addition to the indigenous tribes and Hausa immigrants from the Sudan zone, there are many members of Southern Nigerian tribes in the study area. There were in 1952, 15,491 people (3.4% of total population) of Southern Nigerian origin, including 9,299 Yorubas and 4,997 Ibos while others such as the Igharas from the Mid-West totalled



TABLE 6(b)

TRIBAL POPULATION FIGURES (1952)

Tribe	Population	% of Total
Nupe	204,381	44.0
Gwari	128,327	27.6
Hausa	27,467	5.9
Fulani	13,953	3.0
Kamuku	9,717	2.1
Other Northern Nigeria Tribes	65,264	13.6
Southern Nigeria Tribes	15,491	3.4
Unspecified	1,568	0.3
Non-Nigerians	290	0.1
<b>Total</b>	<b>464,458</b>	<b>100</b>

Source: Population Census of the Northern Region of Nigeria, 1952. Bulletin No. 5 Niger Province, Table B, p. 14,

1,385. At the time of the field survey, all the Ibos in the study area had returned to their clan areas following the civil disturbances which preceded the Nigerian Civil War. Even more Southern Nigerians have however migrated to the study area to work as artisans, traders, railway, government and commercial companies' officials. The presence of southern tribes has to a great extent stimulated the economy of the area as they promote trade within the area as well as between the area

and other parts of the country.

One noticeable feature of the tribal distribution is the fact that Nupe and Hausa tribal groups are found in every part of the area as immigrants while the Gwari and Kamuku tribal groups are seldom found outside their home districts (Hassan, M. and Na'ibi, S. 1962: 80). This aversion to travelling outside among the Kamuku and Gwari tribes may be a carry-over of the fear of slave raids of which the Gwari and Kamukus suffered greatly up to late 19th century, and it may also be due to the exclusive nature of the Gwaris as they (apart from the few educated Gwaris) rarely live among other peoples. This is particularly noticeable in Minna, which is a town founded in Gwari country in which very few Gwaris live. In most cases, the few Gwaris in Minna prefer to live in Gwari villages on the outskirts. In this connection, it may be observed that exclusiveness or aversion to travel outside one's home district is hardly compatible with the development and growth of a modern economy.

Two major factors are making tribal distinctions less meaningful in the area and these are:

- (1) the widespread use of Hausa language; and
- (2) the steady progress which Islam is making among the population.

The Hausa language has become the lingua franca in the area, and some tribal languages such as those of Koro, Ura, Ngwoi and Gade are becoming obsolete since many small tribal groups now adopt Hausa as their first language. The increasing use of Hausa promotes inter-tribal and inter-district trading activities and facilitates the spread of new ideas. The spread of Islam has affected the cultural



life of the people and Islamic law and tradition are gradually displacing the customary laws and tradition of the people.

In spite of the unifying effects of Hausa language and Islam, tribal differences are still strong in the socio-economic and cultural organisation of the different tribes. Tribal differences are found within Districts as different tribes occupy specific parts of Districts; even within villages there are separate tribal quarters as at Katcha (Nupe, Hausa and Yoruba quarters) and at Gwagwalada in Abuja Emirate where Gwari, Koro and Hausa tribes occupy different parts of the village. There are differences in tribal housing: the Nupes build tall round huts with conical roofs; the Hausa build flat-topped houses while the Gwaris huddle their small thatched huts very closely, and leave little space between adjacent houses.

Tribal differences also occur in socio-economic organisation such as in the organisation of family labour on the farm, in the types of crops grown and in methods of growing them. For example, the Nupes are more knowledgeable than the other tribes of the study area in lowland rice culture- producing in some cases as at Edeshigi, two crops of rice on the same plot annually. The Gwaris in the same way are skilled yam farmers. The Hausa population grow sugar-cane, cassava and vegetables, especially onions in the fadams. All over the study area, there is a tendency to tribal specialisation in agricultural production and occupation. Trading in both local products and imported goods is undertaken mainly by immigrant Yoruba and Hausa as well as by some indigenous Nupes. The aversion to travel outside their home districts

has been probably responsible for the fact that very few Gwari and Kamuku tribesmen engage in trading activities. Tribal contrasts in head portage is also noticeable, as though Nupe women are reputed to be great load carriers (Aliyu, H. 1914: 29), Gwari women carry heavier loads on their shoulders in contrast to Nupes who carry loads on their heads.

Differences are noticeable in the demographic and cultural characteristics as well as in the growth of population among the different tribes of the study area. These differences are reflected in the age and sex distribution, child-woman ratio, fertility and birth rates as well as in the rates of growth of population among the different tribes.

#### Age and Sex Distribution

In the demographic analysis of the age and sex distribution of the study area, three types of data were used based on the three zones into which the study area is divided. The data used were the 1952 Population Census, the Annual Tax Census for the year 1968/69 and the questionnaire administered during the field survey.

The 1952 Population Census gives information at District level on age grouped into under 2, 2-6, 7-14, 15-49 and 50 years and over. The age distribution for Pandogari is not available on District level except in the 7-14 and 15-49 age groups so that for comparative purposes the age distribution for Kamuku Local Authority was used for Pandogari while for the other Districts, the age distribution analysis available for the districts were used.



The 1968/69 tax census provides information on the number of adult male and female and "infant" male and female. The "infants" are those less than 14 years old while the adults are over 15 years old. From this can be obtained the percentages of adults and "infants" as well as male/female ration of the population.

From the questionnaire analysis, the age and sex of people enumerated in 215 households in the six case study settlements were analyzed and from this has been derived the age and sex distribution, the age-sex pyramid and the male-female ratio. The information derived from the questionnaire analysis, given in Appendix I is more comprehensive and it covers the age and sex of 1970 people within the six case study settlements.

In discussing the age distribution of the population it should be noted that there are limitations with regard to the accurate age of respondents as there are no vital records. In recording the age of respondents the likely distortions in age were reduced by associating the year of birth with previously recorded prominent events in the locality such as the ascension or death of an Amir, District or Village Head; the opening of a school; building of roads etc. In addition, the concept of 'social-age' was used such as for example, a boy starts school at the age of 6 or 7, he starts paying tax at 15 onwards and a girl gets married from 14 onwards. There were, however, problems in recording the ages of women and also of obtaining information from women as the muslim custom requiring all enquiries about a household to be made through men had to be observed even in non-moslem house-

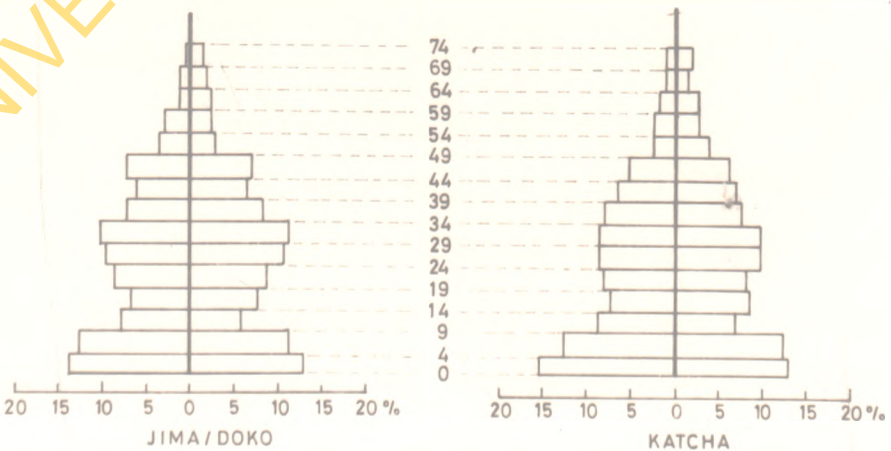
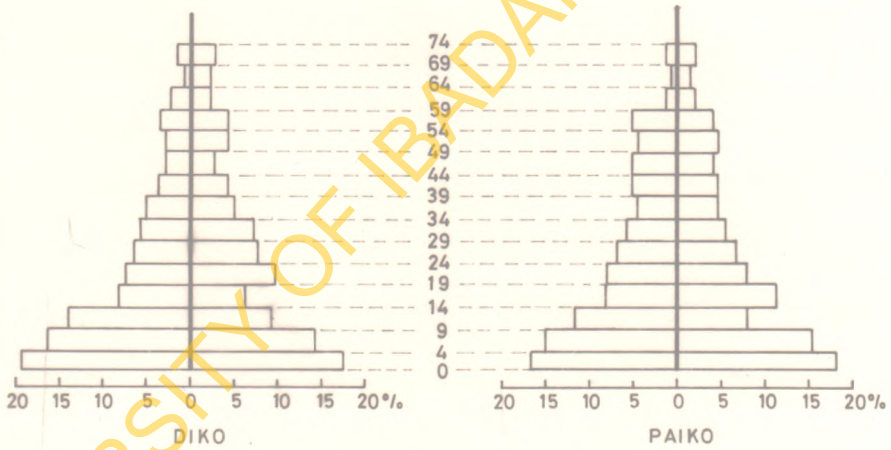
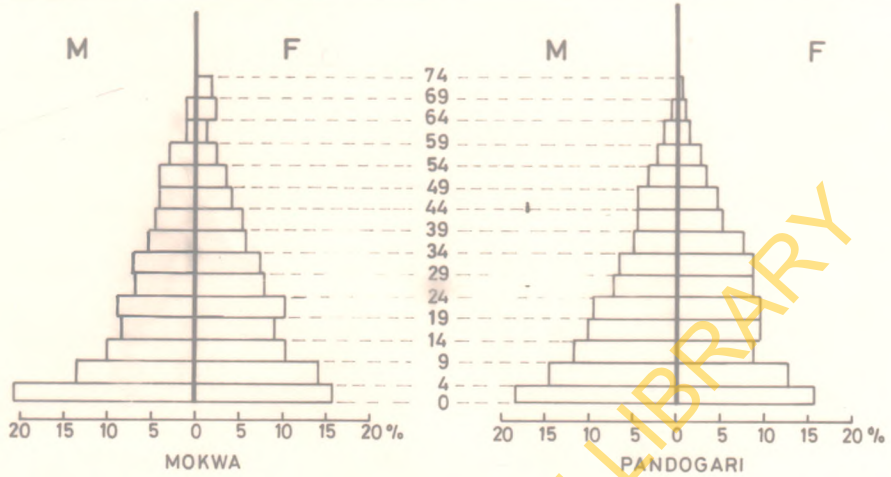
holds. Even when women were interogated (apart from questions on fertility surveys through community nurses) it was the men who usually replied. In any case, it is hoped that any distortions in the age distribution are evenly spread and the data give a fairly accurate picture of the demographic situation.

As can be seen from Appendix I(a) to (f) and in common with other areas in developing countries, there is a high proportion of the population in the lower age groups as the percentage of the population under 20 years of age is over 50 in four of the 6 settlements and consequently, there is a small proportion in the older age groups so that the age pyramids (Fig.12) show a very broad base with quick tapering off in the over 50 age group. An examination of Appendix I (a) to (f) shows that the highest percentage of the population in the lower age groups below 20 is found in Diko with 52.4% under the age of 20, followed by Paiko 52.0%, Nokuwa 51.1%, and Pandogari 50.7%, while the lowest percentages are found in Doko 39.2% and Katcha 42.3%. The preponderance of the lower age group is also revealed in the 1952 Census, Appendix II (a) to (f) in which those 14 years old and below form 40.6% in Pandogari, 39.2 in Paiko, 37.1 in Diko, 36.2 in Nokuwa while the lowest percentages are also found at Doko 31.5% and at Katcha, 35.5% which are mainly Nupe settlements and areas of dense population. The 1968/69 Tax Census also shows that the lowest percentage of the population classified as children (29%) is found in the Nupe settlement of Doko.

This preponderance of the lower age groups is a common feature in many parts of Northern Nigeria (Mortimore, M.J. and Wilson, J. 1965:



Fig 12. AGE AND SEX PYRAMIDS



29; Norman, D.W. 1967: 7 and Goddard, D. 1970: 11) and may be attributed to the gradual improvement in medical knowledge and facilities leading to a reduction in infant mortality. Other reasons may however be found to explain the higher percentage of youthfulness of the populations of Diko and Paiko. These two settlements have been centres of Missionary Health and educational activities since 1942 and with dispensary/maternity and child welfare clinics, it is probable that infant mortality has been considerably reduced. In addition the two settlements have Mission schools which continue to draw their pupils from surrounding Districts. This to some extent has also swelled the number of children in the two Districts.

The persistently lower percentage of children in the Nupe settlements may be a result of the lower fertility of the Nupe as compared with other tribes in the study area. A low net fertility rate and a low proportion of non-adults (895 per 1,000 adult in 1931) were noted in the 1931 Census when a net decrease in Nupe population of 7% between 1921 and 1931 was recorded (Brooke, K.J. 1931: 29). An indication of a general trend of low birth - and fertility-rates as well as a stationary population was also noted among Nupe by Nadel (1942:9), while the problem of a stationary or decreasing Nupe population has been a subject of official enquiry as early as 1939. Fertility surveys conducted in co-operation with Community nurses also show this trend of low birth and fertility-rate among Nupe women than other tribes in the study area. The lower percentage of children in the Nupe villages of Katcha and Doko tend to confirm the low rate of growth



of Nupe population.

Of much importance to rural development in the study area is the proportion of the population in the active age group i.e. those in the age group 15-59 and who are mainly responsible for the economic activities. Diko and Paiko Districts which have the highest proportion of children have the lowest percentage (48.4 and 52% respectively) in the 15-59 age group. These are followed by Hoksia and Pandogari with 57.8% and 58.6% respectively while the highest proportions are found in the most densely settled districts of the study area - Katcha and Doko with 62.8% and 64.6% of the population respectively.

From the point of view of production Katcha and Doko appear more favourably placed than the other settlements, as they have a higher percentage of their population in the active age group and have lower dependency ratios. It should however be noted that in contrast to developed economies, the population in the age groups 7-14 and 60 and over contribute to rural production as agriculture is the dominant economy (U.N. 26: 52) and this is reflected in the calculation of the labour unit in chapter 4. In the case of the Kano close-settled zone, it has been claimed that in a "hand labour economy" the preponderance of lower age groups is "advantageous in a situation in which the cultivated area, and to some extent the yield of food crops, depend upon the number of workers available" (Nortimore, H.J. and Wilson, J. 1965: 33). Every available person may be occupied on the field during the short growing season, even children above the age of six may be usefully employed. (It is however likely that with gradual improvement

in health facilities the proportion of the population in the younger age group will rise. Increasing school attendance particularly at Paiko and Diko will however gradually reduce the contribution of children in the age 7-14 while the active age group will increasingly have to support the younger age group).

The smaller number of older people in the population reflects a low average expectation of life particularly among the male population. The low average expectation of life which is a common feature of the population of developing countries and is observed in other parts of Northern Nigeria (Mortimore, H.J. and Wilson, J. 1965: 29) is a feature of the study area. The evidence does not however support the situation observed in the Kano close-settled zone in which a female aged 11 appears to have almost exactly half as much chance of surviving to 71 as a male of the same age. Of the 94 people over 60 covered in the field survey, only 31 - less than one-third, are men and this shows that here, females have greater chance of survival to older ages than males. The 1952 Census figures for the study area further reflects the average low expectation of life at birth as only 12% of the population was over 50.

#### Male-Female Ratio

In 1952, an excess of female over male was a common feature of the population of all the Provinces of Northern Nigeria but one of the Districts in the study area - Paiko (mainly Gwari settlement) had excess of male over female. The number of males per 1,000 females in the District was 1,153 and 1,035 in 1952 and in the field survey.



respectively. This excess of males over females has been a common feature of the population of the District since the 1931 Population Census. The male-female ratio for Paiko in 1931 was 1,138; in 1952 it was 1,075 and in the tax census of 1968/69 it was 1167. The other Districts have excess of females over males.

This generalised picture however masks the contrasts in male-female ratios within the different age groups. Within the younger age group below 14 there is an excess of males over females in all the Districts in the field survey and the 1952 Census with the exception of Katcha where the number of males and females are the same in the survey while in the 1952 Census there was excess of females over males at Mokuwa and Katcha. As observed earlier there is an excess of females over males in the age 50 and over except at Paiko where the survey shows more males than females, though in the 1952 Census, there was an excess of females. With regard to the more reproductive age group 15-49, the survey shows an excess of males. This is related to the polygamous nature of marriages as well as the tendency among respondents to under-declare the age of their wives. The 1952 Census recorded more females except at Mokuwa and Paiko where more males were recorded. In general Appendix I and II indicate that the ratio of males to females shows at the lower ages a positive correlation with age and then from 14 years old and more, a negative correlation with an increase in age.

#### Marital Status

Closely related to the male-female ratio in the study area is the

marital status of the population. Marital status in the study area reflects level of prosperity and status, religion and male-female ratio. Table 7 shows that a higher percentage of the respondents at Paiko and Diko (87.5 and 82.4% respectively) are married to only one wife and this stands in great contrast to Doko and Katcha where the male-female ratio is higher and where 54.9% and 57.9% of the men are married to one wife. This tendency to marry one wife in Paiko and Diko is also influenced by cultural factors and the economies of the two settlements. Diko is a predominantly Christian settlement where monogamy is obligatory while Paiko, as noted earlier, have consistently shown an excess of males over females. The economies of the two settlements are predominantly agricultural with less developed trading activities than at Katcha, Doko and Randogari. Islam which has greater influence among the Nupes at Katcha, Doko and Mokuwa allows polygamous marriages and as the Nupe women are active traders in these settlements, the men can afford to marry more than one wife since the wives are less dependant on them for support.

Even though the Islamic religion allows four wives, the possession of two or more wives in the study area is not common as only 29.4% of the respondents have two or more wives and only 4% of the married men have 4 wives. The number of wives is clearly an index of a person's wealth and status in the community and the possession of two or more wives is found only among the local nobility and rich families.



## NUMBER OF WIVES PER MARRIED MAN

District	Married Respondents	One Wife		2 Wives		3 Wives		4 Wives		2+ Wives	
		No.	%	No.	%	No.	%	No.	%	No.	%
Kolka	35	24	72.7	5	15.1	2	6.1	2	6.1	9	27.3
Pandogari	31	22	71.0	5	16.1	3	9.7	1	3.2	9	29.0
Diko	34	28	82.4	4	11.8	2	5.9	-	-	6	17.6
Paiko	32	28	87.5	3	9.4	1	3.1	-	-	4	12.5
Jima/Doko	33	18	54.5	8	24.2	5	15.2	2	6.1	15	45.5
Katcha	38	22	57.9	9	23.7	4	10.5	3	7.9	16	42.1
Sample Area	201	142	70.6	34	16.9	17	8.5	8	4.0	59	29.4

Source: Field Survey Questionnaire Analysis

## Religion

Geographers have long recognised that religious ideas and organization may play an important role in the way man occupies and works the land. Relatively little attention has however been devoted to the influence of religion on the cultural landscape (Sopher, A.E. 1967) due to inadequacy of the available statistics and other fundamental data and the intractability of the material itself (Zelinsky, W. 1961: 140-141). Unlike some other demographic or cultural traits, religion is a many-sided phenomenon; some of its more important aspects are extremely difficult to define or measure, and others, such as personal attitudes to religious matters, are possibly beyond the scope of direct observation. In view of this, Clarke observes that "any examination of religion which is purely quantitative lacks penetration" (Clarke, J.I. 1965: 101). An examination of the religious composition and field observation of the population, however reveals the influence of religion on modes of life, settlement forms and human activities.

A distinguishing feature of the Middle Belt population as compared with the Sudan zone of Nigeria is the predominance of traditional religious beliefs and the greater influence of Christianity vis-a-vis Islam. As discussed in chapter 1, population census returns of the Middle Belt since 1951 have shown a predominance of traditional religious adherents. This is true of the study area apart from Bida Division where Mohammedanism gained a strong footing under Fulani Emirs. Table 8 shows the religious composition derived from the field survey of the six case study Districts. It can be seen from the field



survey that over 32% of the respondents are of traditional religious belief while Moslems form 44.6% of the respondents. Further examination reveals that Districts like the Nupe Districts of Nokna and Katcha are predominantly moslem.

Since the reign of Jibiri who reigned about 1700 (Nadel, S.F. 1942: 76) and also following the installation of the first Fulani Etsu of Nupe in 1836 Islam became the official religion of the Nupe Empire and has continuously been promoted by the ruling class and

TABLE B: RELIGIOUS GROUPS - PERCENTAGE OF POPULATION

District	Moslem	Christian	Traditional Religion
Nokna	74.5	8.5	17.0
Pandogari	42.9	-	57.1
Diko	16.6	55.6	27.8
Paiko	25.0	14.3	60.7
Jima/Doko	21.4	42.9	35.7
Katcha	86.7	13.3	-
Sample Area	44.6	22.8	32.6

Source: Field Survey Questionnaire Analysis.

the nobility in Nupeland. There is however an exception to the predominance of Mohammedanism in Nupeland and this is at Doko where Christians are in majority. Here, Christian Missionary activities (of the C.M.S. Mission) started as early as 1903 and Christians form the largest single religious group of the respondents (42.9%).

The other Districts of the study area are mainly of Gwari, Kamuku and related tribes and the people are predominantly of traditional religion. Of the three Districts only Diko embraced Christianity and here 55.6% of the respondents are Christians. Christianity also gained some foothold at Paiko where 14.3% of the respondents are Christians while respondents at Pandogari are mainly of traditional religion (42.9%) and Islam (57.1%). It should however be noted that Islam is making steady progress throughout the study area and many Christians (as at Paiko, Katcha and Gawun) and people of traditional religions are embracing Islam. We however have to add that apart from the larger Nupe settlements, and at Abuja the outward manifestation of Mohammedanism is very low. Temple's observation in 1916 that Islam is "advancing rapidly" among Gwari mainly "for social rather than religious reasons" is as valid now as it was then. Many districts in the study area regarded as Muslim districts and many respondents who declare they are moslems are so regarded mainly for social and political reasons. Nearly all members of the ruling class and the Hausa immigrant group in the districts profess to be moslems for the prestige, social advantage and political patronage which islam appears to confer on them than from any religious conviction.

Any study of rural development in the study area which does not take into account the religious influence on the economy and way of life of the people is incomplete. The spread of Islam has affected the cultural life and socio-economic organisation of the people in the study area. From discussion with respondents and observation in the



field it is clear that Islam has become particularly strengthened since the introduction of political party rule in the early 1950's and it has continued to exercise a lot of influence on the life of the people of the study area. For example, of far-reaching effects on the life of the people is Islamic law which now takes precedence over all other types of law in the local administration. As will be shown in Chapter 5, tenurial rights on agricultural land in most parts of Bida Division are based on the Maliki law of Islam while Islamic religion has gradually led to the adoption of the iyali individual family farming unit in preference to the gandu composite family farming unit. The main markets throughout the study area are held on Sal-lah day - Fridays in order to afford the people the opportunity of combining trade with worship.

The Mohammedan type of walled or fenced compounds is now becoming the rule rather than the exception owing to the increasing practice of auren kulle (wife seclusion). Harems are contracted mainly in the moslem tradition and even though only 8.14% of all married respondents keep harems, a great majority of them prefer and hope to keep harems when their financial positions improve. The Islamic tradition in many cases has segregated a few women and this has deprived them of many of the economic functions they perform in other societies. In moslem families women do not work in the field whereas women from traditional religion and Christian families are involved in such agricultural tasks as planting, weeding and harvesting (particularly among the Gwaris) as well as in active trading.



The pilgrimage to Mecca is a life ambition of a great majority of the respondents, and those who have performed the holy pilgrimage are held in high esteem throughout the study area. For instance a total of 122 moslems in the study area performed the holy pilgrimage to Mecca in 1967, 207 in 1968 and 398 in 1969, giving an increase of 201.5% between 1967 and 1969.<sup>1</sup>

Education has been particularly influenced in the study area by islamic religion. Many respondents prefer Koranic education to Western education and hence are reluctant to send children into Primary Schools. Table 11 shows the low percentage of children who attend Primary Schools and ~~that~~ the majority of the pupils are from christian and traditional religion families. The image of the 'learned Malam' is quite high particularly in towns of Bida, Agala, Abuja, Lapai and other District headquarters, and as "religious institutions producing mass literacy have not appeared in Islam as they have in other religions" (Sopher, D.E. 1967: 43) the literacy rate among moslems in the study area is very low.

Christianity has also affected sections of the people of the study area though in specific localities as at Doko, Enagi, Gawn, and Duari Districts. Its effect can be seen in the higher standards of literacy at Diko and Doko where 44.4% and 28.5% respectively (Table 10) of respondents are literate in either English or Hausa, since Missionary activities which oblige the individual to read the Scriptures create favourable conditions for attainment of a higher literacy rate. This is

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1. Pilgrim records obtained from Pilgrim Agents.



in contrast to 8.6% and 13.9% at Pandegari and Mokuwa respectively where the majority of the population are mainly moslems or pagans. A higher percentage of children of christians also attend Primary Schools at Diko and Doko where 63% and 59% of 7-14 years age group of respondents' children attend Primary Schools. This is in contrast to 19% and 24% at Pandegari and Mokuwa respectively. Health facilities are also better developed through the establishment of Missionary Dispensaries at Diko, Paiko and Mokuwa. Other effects of Missionary activities are seen in the encouragement of Christians to diversify crop production as at Diko where Christians were encouraged to grow cotton for export and at Doko and Paiko where they were actively encouraged to grow rice.

Traditional religion also has its impact on the ways of life and economy of the people. In spite of the growing popularity of the cultivation of grains in the study area, the Gwaris still have a strong attachment to yam cultivation as a result of the pride of place given to yams in their traditional religion, while the widespread reluctance of Nupes to cultivate groundnuts is a result of the traditional religious belief which associates their production with outbreaks of smallpox. It can therefore be seen that religion is a strong factor in both the social and economic life of the people of the study area.

#### Education

The literacy of the population is a useful indicator of the relative development of a country as a result of its educative process in the past. Benjamin Higgins even regards education as development in itself when he

claimed that "expenditure on education, health, housing and the like are not merely means to economic development, they are economic development" (Higgins, B. 1963: 185). In a developing country like Nigeria and its Middle Belt in particular, education is one of the most effective means of introducing and spreading new and innovative ideas in a society, and the success of such modernising activities as agricultural extension services and health education is dependent on the ability of the population to follow intelligently the various publicity and educative materials essential to rural development.

An examination of the 1952 Population Census returns reveals the very low level of literacy in the study area (Table 9). Of the total population of 474,458, only 3,891 or 0.8% of the total population had Elementary IV education or over, while 7,823 others (1.7%) are literate in varying degrees but below Elementary IV. This brings the total literates to 11,714 or 2.5% of the population. This percentage is lower than the Niger Provincial percentage of 2.8% literate and the percentage literate for the Middle Belt Provinces of Plateau (5.2%), Ilorin (5.3%) and Kabba (4.7%). The percentage is however higher than those of the other two Middle Belt Provinces of Adamawa (2.3%) and Baze (1.9%) and those of the Sudan Provinces apart from Zaria Province which had the highest Provincial literacy percentage in Northern Nigeria.

This overall picture however conceals the variations in the literacy rate within the study area. An examination of Table 9 shows that the densely populated districts of Katcha and Doko attain relatively higher literacy percentages - 9.3% and 8.6% respectively while the lowest



TABLE 9: LITERACY AND EDUCATIONAL STANDARD (1952)

District	Total Population	Elementary IV		Adult Education		Primary + Adult Education		Arabic Literate		Illiterate	
		No.	%	No.	%	No.	%	No.	%	No.	%
Mokwa	4,542	138	3.0	172	3.8	310	6.8	303	6.7	3,929	86.5
Pandogari	3,451	43	1.3	21	0.6	64	1.9	246	7.1	3,140	91.0
Diko	3,571	85	2.4	93	2.6	178	5.0	30	0.8	3,363	94.2
Paiko	4,148	64	1.5	62	1.5	126	3.0	134	3.2	3,888	93.8
Jima/Doko	4,997	70	1.4	358	7.2	428	8.6	98	2.0	4,471	89.4
Katcha	3,683	150	4.1	191	5.2	341	9.3	446	12.1	2,896	78.6
Sample Area	24,388	550	2.2	897	3.7	1,447	5.9	1,257	5.2	21,683	88.9
Survey Area	474,458	3,891	0.8	7,823	1.7	11,714	2.5	10,701	2.3	452,043	95.2

Source: Population Census of the Northern Region of Nigeria, 1952, Bulletin 5, Table A, pp. 1, 3, 5, 10-11.

TABLE 10: LITERACY AND EDUCATIONAL STANDARD (1969)

District	Respondents No	Primary Education		Adult Education		Primary + Adult Education		Arabic Education		Illiterate	
		No.	%	No.	%	No.	%	No.	%	No.	%
Nokua	36	3	8.3	2	5.6	5	13.9	6	16.7	25	69.4
Pandogari	35	2	5.7	1	2.9	3	8.6	3	8.6	29	82.8
Dlso	36	4	11.1	12	33.3	16	44.4	1	2.8	19	52.8
Paiko	35	2	5.7	2	5.7	4	11.4	3	8.6	28	80.0
Jima/Dolo	35	4	11.4	5	17.1	10	28.5	3	8.6	22	62.9
Katcha	38	3	7.9	4	10.5	7	18.4	11	29.0	20	52.6
Sample Area	215	18	8.4	27	12.6	45	20.9	27	12.6	143	66.5

Source: Field Survey Questionnaire Analysis.



percentages are found in the sparsely populated Districts of Pandogari (1.9%) and Paiko (3.0%). The relatively high percentage recorded for Mokwa (6.8%) is due in the main to the then presence of literate staff of the Niger Agricultural Project and Railways at Mokwa and most of the literates are not indigenes of the District. The percentage of 5% for Doko is a result of Missionary activities in the area, further illustrating the effect of religion on educational development in the study area.

Table 9 compared with Table 10 shows the literacy changes that have taken place in the study area between 1952 and 1969. In 1952, Katcha had the highest literacy rate of 9.3% but in 1969, its literacy rate

**TABLE 11: PRIMARY SCHOOL ATTENDANCE AGE GROUP 7-14 YEARS**

District	No. in Group	No. in School	% in School
Mokwa	45	11	24
Pandogari	65	12	19
Diko	56	35	73
Paiko	57	12	21
Doko	46	27	59
Katcha	42	15	36
Sample Area	309	112	36

Source: Field Survey Questionnaire Analysis.

came third having been overtaken by Diko 44.4% and Doko 28.9%. This is mainly due to Missionary activities which enable individual Christians to read the scriptures as well as encourage them to send their children to Primary Schools. The increasing immigrant elements at Moku also increased its literacy rate from 6.8% in 1952 to 13.9% in 1969, while that of Pailo rose from 3% to 11.4% in the same period. Pandogari whose population is mainly pagan (57.1%) and Moslem (42.9%) has the least percentage literacy (8.6%). The same pattern is found with regard to Primary School attendance (Table 11). Diko and Doko have the highest percentages - 73% and 59% respectively of children aged 7-14 attending Primary School, while the lowest percentage (19%) is found at Pandogari. The fairly high percentage at Katcha (56%) reflects its cosmopolitan nature as a centre of trade with a sizeable immigrant population of Yoruba, Hausa and other tribes.

The pattern that emerges from the foregoing discussion is that educational development is mainly dependent on the activities of the missionaries, and that the Christian population is more responsive to secular education than are the Moslems. In addition to religion, other factors that influence the spread of education in the study area are the provision of educational facilities in populous centres as at Katcha, relevant current campaigns, conducted by the State Government and the possibilities of interaction with immigrants through trade and travels as at Moku and Katcha.

#### Population Growth

In discussing the effects of population growth on economic development, Coale and Hoover ( 1958: 18-25 ) identified three dependent



demographic factors which they regard as basic viz: (i) the size of a population; (ii) its growth rate; and (iii) its age distribution. Opinions differ as to the effects of population growth on economic development with the neo-Malthusian school regarding rapid population growth as a deterrent on economic development while others such as Bosserup, E. (1965: 11) and Clark, G. (1968: 137) regard population growth as motive force bringing about rural economic development.

Examples abound of rapid population growth and pressure on land with consequent little effect on rural economic development in low-income economies. On the other hand, the Middle Belt of Nigeria and particularly the study area, is unique in the sense that there is little pressure on the land and population growth is slower than in other parts of Nigeria, while one example of apparently stagnating or absolute decrease in tribal population is found. As the size of the population and its age distribution has been discussed above, we shall examine in this section the growth of the population and what implications this may have on rural development of the study area.

In discussing the population growth, we are handicapped by the non-availability of birth and death records and data for calculating gross and net reproduction rates. The discussion of the growth in the population of the study area is therefore based on the 1931 and 1952 Population Censuses, on miscellaneous reports on Niger Province now deposited at the National Archives at Kaduna and on the annual tax censuses between 1958/59 and 1968/69 obtained from the Local Authorities of the study area, as well as on fertility survey carried out during the field work.

The population and growth rate between 1931 and 1952 Censuses for

the administrative areas of the study area are given in Table 12. In 1931, the total African population was given as 393,119 while in 1952, this has grown to 464,458. In order to find the annual rate of growth between 1931 and 1952, the following formulae was used (U.N. 1969: 19).

$$r = \left\{ \sqrt[t]{\frac{P_1}{P_0}} - 1 \right\} \times 100$$

where  $P_0$  is the population in 1931

$P_1$  is the population in 1952

$t$  is 21 (years between 1931 and 1952)

$r$  is the annual per cent rate of change

**TABLE 12: POPULATION GROWTH 1931-1952**

Administrative Division	Population 1931	Population 1952	% Annual Growth Rate
Abuja Emirate	74,405	67,919	- 0.4
Bida Emirate	171,790	195,494	0.7
Agala/Iapai Division	56,049	53,992	- 0.2
Minna Division*	90,875	147,053	2.3
Study Area	393,119	464,458	0.8
Kano Emirate	1,992,263	2,882,414	1.4
Sokoto Emirate	1,323,531	2,020,340	2.1
Former Northern Region	11,434,910	16,840,479	1.9

- sign denotes decrease rate per annum.

\* Less Wushishi Emirate in 1931 (outside study area) and in 1952 including 1,365 people unspecified as to Districts in Minna Division.

Sources: (1) Census of Nigeria, 1931, Vol. II, pp. 176-178

(2) Population Census of the Northern Region of Nigeria 1952. Bulletin 5, pp. 1-3 & 9; Bulletin 11, p. 9.



For the study area as a whole the annual rate of growth is 0.8%. For comparative purposes, the annual growth rates for Kano and Sokoto Emirates in the Sudan zone and for the former Northern Region are given in the same table as 1.4%, 2.1% and 1.9% per annum respectively, showing the comparatively low rate of population growth in this part of the Middle Belt. Abuja Emirate and Agale/Iapai Division actually show negative growth rates of 0.4% and 0.2% respectively as there was an absolute decrease in their population between 1931 and 1952.

In addition to these, there has been reports of absolute decrease in the population of the principal tribal group of the study area - the Nupe, since 1921 (Weatherhead, T. 1959: 44) and this was subsequently confirmed by the 1931 Census (Brooke, W.J. 1931: I: 14-15 & II: 29) as well as become a subject of enquiry in 1958. The absolute decrease in Nupe population was clearly indicated in the 1931 Population Census Report when it was observed that: "The Nupe, including their sub-division, show a decrease of 23,500 or 7 per cent (between 1921 and 1931). This decrease coincides with a low net fertility rate, with high per mille figures for blindness (10.5) and a low proportion of non-adults (895) per 1,000 adult males. The 1928 report on the Nupe Province refers to a decrease in population. In 1921, there was a considerable fall from the figures recorded in 1921". The population of the Nupe tribe was given as 349,008 in 1921 and ten years later in 1931 it was given as 326,017. "These figures", observed Dr. Madel "implying a fall of over 20,000 in ten years, cannot be accepted as anything but a very crude approach to the true situation" (Madel, S.F. 1942: 9).

The probable causes of the absolute decrease in the population of this part of the Middle Belt are the apparently low birth and fertility rates among the Nupe (Tables 13 and 14) and emigration to other parts of Nigeria. This low birth and fertility rates among Nupe are illustrated by the 1931 Census in which the Nupe of all the tribes in Northern Nigeria, has the lowest rate while in the age group 30-39, 54% of Nupe women were sterile. Of all the principal tribes in Northern Nigeria, the Nupe tribe has the least number of children per mother, 0.667 as against an average for all tribes of 1.606. During the field survey also, it was found that the Nupe has the least number of pregnancies and live births per woman (Table 14), 3.1 and 2.5 respectively as against the 5.3 and 4.5 respectively of the Gwari tribes and against the 5.0 and 3.5 respectively of the Hausa tribe.

TABLE 13: NUMBER OF CHILDREN ALIVE PER MOTHER BY PRINCIPAL TRIBES IN NORTHERN NIGERIA

Tribes	Women Examined	No. of Mothers	Children	Children Per Mother
All Tribes	223,605	155,026	248,751	1.605
Fulani	59,516	40,990	72,901	1.779
Gwari	3,575	2,520	4,346	1.724
Hausa	79,622	55,930	87,736	1.569
Kanuri	26,033	17,436	30,045	1.728
Hamshi (Tiv)	1,952	1,269	1,798	1.417
Nupe	3,622	2,988	1,994	0.667
Yoruba	4,462	3,265	3,269	1.001

Source: Census of Nigeria, 1931, Vol. II, Table XVI,



TABLE 14: FERTILITY SURVEY OF WOMEN IN REPRODUCTIVE AGE GROUP

	Nupe	Gwari	Hausa	Yoruba	Fulani
Number of Women	45	22	16	10	5
No. of pregnancies per woman	3.1	5.3	5.0	4.5	4.0
No. of live births per woman	2.5	4.5	3.5	3.6	3.3
No. of still births/miscarriages per woman	0.6	0.8	1.5	0.9	0.7
No. of live children per woman	1.6	2.9	2.2	2.5	2.3
No. of dead children per woman	0.9	1.6	1.3	1.1	1.0
Live children as % of live birth	64.0	64.4	62.8	69.4	69.7
Dead children as % of live birth	36.0	37.3	37.2	30.6	30.3

Source: Survey conducted in collaboration with Community Nurses at Bida and Minna.

Evidences of emigration from the study area abound in the various Annual Reports since 1951 (Weatherhead, T. 1959: 5) and Dr. Nadel also observed that a continuous emigration and the existence of a floating population of traders and craftsmen drifting to the prosperous centres in the south could be established beyond doubt (Nadel, S.F. 1942: 10).

During the field survey in 1968/69, it was found that 43% of the Nupe interviewed had relations who have emigrated to other parts of Nigeria particularly to Ibadan, Ilorin, Lagos, Onitaha, Lokoja, Kaduna, Kano and Sokoto. This is in contrast to the Gwari respondents among whom only 8% claimed to have emigrant relations outside their home districts. At present fairly conspicuous settlements of Nupe are found



in Ibadan (Nokola and Sabo), Kano (Tudun Nufawa), Lokoja (where they form a third of the population) and at Onitsha (where they were boat-builders and traders before the Nigerian civil war). At Ibadan and Ilorin the writer found three generations of Nupe immigrants while many Nupe met at Lokoja regard that as their home town. As a result of the civil war, 521 Nupe households with a total population of about 7,000 were displaced from Onitsha and other war-affected areas of Eastern States of Nigeria.<sup>1</sup> The creation of the Kainji Lake has also been responsible for the displacement of Nupe particularly the Kede Nupe along the valley of River Niger, further increasing Nupe emigration from their home Districts (Adeniyi, E.O. 1970: 181).

The implications of low population growth rate and emigration with regard to the rural economic development of this sparsely populated part of the Middle Belt cannot be over-emphasized. Assuming that Myrdal's (1957: 13 & 20-27) "interregional inequality model" operates in this situation, the Middle Belt would suffer from "backwash effects" as the higher returns obtainable at the growing zones of the country would make it tend to lose not only its more skilled and enterprising population but also much of its locally generated capital. It appears that this model was operative in the Middle Belt economy until about a decade ago, but since then certain exogenous factors discussed in chapter two became operative and turned the Middle Belt into a "low growing" zone, and it has now become a net recipient of population migrations.

The growth in the population can be seen in Table 15 which shows

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1. Personal information received from the Chief Scribe, Bida Local Authority, 25/3/69.



the annual growth in the taxable population between 1958 and 1968. Compared with Table 12 the net annual growth rate of 0.3% has increased to 2.0% exceeding the annual growth rate in Sokoto and Kano Emirates (1.2 and 1.4% respectively) where population growth rates have been previously higher compared with the study area. No District experienced any decrease in population as was the case before 1952.

**TABLE 15: GROWTH IN TAXABLE POPULATION 1958 - 1968**

District	Taxable Population 1958	Taxable Population 1968	Annual Growth Rate (%)
Jima/Doko	20,214	23,340	1.5
Katcha	17,304	19,476	1.6
Holma	18,562	21,109	1.0
Miko	24,321	31,668	2.7
Faiko	21,231	27,437	2.6
Kwagoma	3,215	4,297	2.9
Sample Area	104,846	127,327	2.0

Source: Annual Tax Population Census Files, District and Local Authority Offices at Abuja, Bida, Kagara and Minna.

The growth in the population has been a result of both natural increase and immigration, particularly the latter. For example, the tribal taxable adult figures kept at Kwagoma District show that of the 914 tax payers in 1958/59, only 65 (or 7.1%) were Hausa while by 1968/69, the population of immigrant Hausa out of the 1,234 tax payers had risen to 185 (or 15%). This increase in Hausa population accounted for 37.5% of the total increase within the ten-year period. At Faiko, Fulani herds-

men tax payers numbered 94 in 1968 whereas there were only 12 Fulani tax payers in 1958. In 1968, 132 immigrant Hausa fishermen registered with the Sarkin Hausawa at Katcha while of the 42 registered yam brokers in Abuja Emirate 31 were Yoruba immigrants. All over the study area, trade in imported goods and inter-zonal trade between the forest zone and the Middle Belt is organized mainly by immigrants from the forest zone. Similarly, the trade in food crops between the Sudan and Middle Belt zones is organized mainly by Hausa immigrants. The railways also provide employment opportunities for a large number of people at Minna and other railway stations and many of the employees come from outside the study area.

Two main factors are responsible for the influx of people into this sparsely populated area of Nigeria. First, opportunities for trade in food crops increased following effective demand for food crops produced in the Middle Belt from the Forest and Sudan zones, so that many traders moved in from the Forest and Sudan zones, to take advantage of opportunities for trade in food crops and manufactured products. Secondly, opportunities for the acquisition of farmlands continue to attract immigrants from the densely populated areas of the Sudan zone so that in the 1968/69 cropping seasons alone, 64 farmers immigrated into Abuja Emirate from the Kano close-settled zone,<sup>1</sup> while others immigrated from other areas such as Zaria, Katsina and Sokoto. Two groups of immigrants could therefore be identified. These are:

(i) immigrants who came in mainly as traders, artisans and employees of

1. Based on information from the Agricultural Officer, Abuja,



firms and corporations; and (ii) immigrants who settle mainly as farmers. Immigrants in the former group are mainly of Forest zone origin while those in the latter group come mainly from the densely populated areas of the Sudan zone.

The population movements into this part of Nigeria's Middle Belt have a number of implications for the rural economic development of the area as well as on the economy of Nigeria as a whole. In the first place, the Middle Belt which had been a net exporter of population and a lagging region in the past has become a frontier zone attracting immigrants from other parts of Nigeria. Secondly, trade in both food crops and manufactured goods as well as the flow of people and ideas between the Middle Belt and other parts of Nigeria are enhanced thus widening the markets for food crops produced in the Middle Belt and consequently leading to increase in farmers' income. In the third place, the increasing demand for food crops produced in the Middle Belt is leading to increasing intensity of land use both in terms of scale of operation and in unit area cultivated. More lands are therefore being brought into agricultural use while the production of such crops as rice, onion, sugar-cane and vegetables is expanding. In the fourth place, there is a noticeable increasing integration of the Nigerian economy thereby leading to specialisation of production, increased communications, trade and exchange between the Middle Belt and the Forest and Sudan zones of Nigeria. These developments are to be further discussed in subsequent chapters.

CHAPTER FOURTHE ORGANISATION OF AGRICULTURAL LABOUR AND LAND AND LABOUR RELATIONSHIPS

In this chapter we discuss the organisation of agricultural labour and the land and labour relationships in so far as they affect rural economic development. We bring out contrasts and changes taking place in the units of organisation of agricultural labour in different parts of the study area as well as in the sources of agricultural labour.

THE FARMING UNIT

The unit of investigation is the household or farming unit which is a separate unit of domestic economy with a single head (head of household - mai-gida), a common production and consumption of food, a common set of farms, granaries, and a common pot (tukanya). The household or farming unit is defined in the case of this study as "those persons eating from the same pot" and it has been assumed that such a group constitutes an economic unit. In Hausa, this is expressed as 'Suna ci dawa tukanya dawa', and it is the definition adopted by the Federal Office of Statistics in their Agricultural Sample Surveys. It also forms the unit of socio-economic studies undertaken by Smith (1955) and Norman (1967) in Zaria and by Polly Hill (1968) in Batagarawa. 215 farming units were interviewed in the six case study Districts, and it was found that kinship relations invariably form the basis of the farming units.

Two basic types of farming units are recognised: the individual family unit (ivali, pl. ivalai) and the composite domestic unit (gandu pl. gandaye). Different proportions of the two basic types of farming units were found in the six case study settlements (Table 16). The



individual families iyalai have become the essential farming unit forming 66.5% of all farming units. The iyali is made up of a man (single or married), his wife or wives and dependent children, real or adopted, and in some cases, includes the man's aged mother, for whose care he is responsible.

TABLE 16: TYPES OF FARMING UNITS

District	Farming Units Interviewed	Iyalai		Gandaye	
		No.	% of all farming units	No.	% of all farming units
Mokwa	36	25	69.4	11	30.6
Pandogari	35	21	60.0	14	40.0
Diko	36	26	72.2	10	27.8
Paiko	35	17	48.6	18	51.4
Jima/Doko	35	26	74.3	9	25.7
Katcha	38	28	73.7	10	26.3
Study Area	215	143	66.5	72	33.5

Source: Field Survey.

The composite domestic farming unit (gandu), comprises two or more male adults, usually married, and their dependents farming together under common leadership of their father or most elderly brother. In Nupe terminology this is known as efako and formerly formed the basis of domestic organisation in all economic activities such as farming, craft-work and trading. Nadel (1942: 241-256) remarked that labour organisation

in Nupeland in every field of economic activity is characterized by a distinction between individual work (buca) and composite family work (efako). He also maintained that from the economic point of view, the large labour group of the efako-unit is advantageous to the cultivation of a large variety of useful and profitable crops. He found that 33 (66%) of the 50 Nupe households he interviewed were organised in efako. Smith (1955: 20) also found that the gandu remains "the ideal pattern of domestic organisation" for agricultural production among the Hausa. Among the Gwari of the study area, the gandu farming unit forms the basis of agricultural production; in this connection, Hassen and Na'ibi (1962: 40) observed that "amongst the Gwarin Yamma the youths continue to work on the general farm even after marriage" and claimed that the "system is maintained by them to this day". In many parts of Northern Nigeria, the gandu has been found to be the main basis of agricultural production and this has been recognised, among others, by Greenberg (1947), Norman (1967), Pelly Hill (1968) and Goddard (1969).

#### Organisation of the Gandu

The members of a gandu and their dependents work together on a set of common gandu farms under the direction of a single head, usually the father or the eldest brother if the father has died or becomes incapacitated as a result of ill health or old age. The gandu head supplies the agricultural tools and seeds, and is responsible for the food, housing and clothing of the members and dependents within the gandu, as well as for paying the annual tax of the adult male members. He is also expected to establish the members socially when they reach full adulthood by paying



their bride-price and other marriage expenses as well as child-bearing expenses. The members of the gandu in return are expected to follow the direction of the head and work in the gandu farms under his supervision. The individual members of the gandu are allowed to farm small plots of their own - 'evening farms' known as gayauna or larga (buca - Nupe) and they also carry out some craftwork in the dry season. Work on the gayauna is mainly performed in the evenings and on Fridays, and provides independent income for members' personal needs over and above those catered for by the gandu head such as recurrent expenses on clothing and personal savings. The gayauna plot is usually less than one acre and individual members are free to grow whatever crops they choose on it, using their small savings to buy fertilisers or materials for craftwork.

The majority of the farmers aged over 40 years interviewed regard the gandu as being the ideal farming unit, and maintain that it has many advantages over the iyali farming unit in providing labour essential to the cultivation of a large variety of crops: the younger members of the gandu learn from and are guided by the older members, while responsibilities on the farms can be well distributed. The essentially competitive spirit found within well-organised gandave usually enhances the energy devoted by the individual worker to the common task. Moreover, the existing social framework within the gandu guarantees a measure of security for individual members of the gandu, particularly for the old men.

On the other hand, young farmers below 30 years of age feel that the gandave system does not guarantee a measure of freedom and discretion in planning farm work and other rural activities. Individual members of the

gandaye are restricted in their freedom of choice of crops, method of cultivation and in the disposal of crops jointly produced. Some members of the gandaye take undue advantage of the organisation by not being hardworking at the joint farm work. Enterprising members of the gandaye are therefore not satisfied with the apparent security offered by the gandaye and thus prefer to be self-reliant in their farming activities. It therefore appears that the gandaye system as an 'ideal pattern of domestic organisation' in agricultural production is being undermined while the iyalaj is becoming the ideal unit of agricultural production.

#### Changing Patterns of the Organisation of Farming Units

Table 16 shows that only 33.5% of the farming units were gandaye. However, the incidence of gandaye among the Gwari and Kamuku tribes of Paiko and Pandogari is quite high, forming 51.4% and 40.0% of total farming units interviewed respectively. At Mokwa and Diko (Nupe and Gwari Districts respectively) the incidence of gandaye is lower - 30.6% and 27.8% respectively, while the lowest incidence is found in the mainly Nupe high population density Districts of Katcha (26.3%) and Jims/Doko (25.7%). The variation in the incidence of gandaye in the Districts may be explained by a number of factors.

The high incidence of gandaye at Paiko and Pandogari may be explained by the fact that they are located in the moderately and sparsely populated Districts respectively and as there is no farmland shortage, it is still possible for composite farming units to have their farming plots fairly close to their settlements in large blocks. The Kamuku and Gwari tribal system of building composite family dwelling houses on their farms, and



their socio-cultural organisation whereby close relations live and work together in large compounds (gida pl. gidaje), particularly favour the gandu farming system. The production of yams, guinea-corn and millet, which are the main crops at Paiko and Pandogari, is usually based on the gandu system, and until recently food crop marketing was poorly developed in the two Districts so that the commercialised production of food crops, which has led to the formation of individual family farming units at Katcha and Jima-Doko Districts, was absent. Besides, the production of rice, which has become the most commercialised agricultural activity in the study area, is on a very small scale because of the few fadama and the absence of rivers with wide flood plains in Paiko and Pandogari Districts.

In addition, a strong incentive is given to Fulani sons to remain within the gandu among those Fulani who have settled in Paiko District and who own substantial numbers of cattle as the gandu system particularly ensures the supply of herdsmen. Off-farm employment, such as in craft-work and trade, which has been a source of capital for many young Nupe farmers at Katcha and Jima-Doko wishing to set up on their own, is few at Paiko and Pandogari. Of the 71 farming unit heads interviewed in the two Districts, only 15 or 21% had other occupations apart from farming. The absence of off-farm income to substitute for farm income to cover the social obligations of members of the gandaye strengthens the authority of the gandu head. The aversion to travel by Gwaris outside their homelands noted in chapter 3 ties the Gwari and Kamuku of the two Districts to their home communities, and they are thus usually unwilling to avail themselves



of the off-farm earnings which could make them independent of the gandu.

As noted in chapter 3, religion has influenced the socio-economic organisation of the people of the study area and both the spread of Islam in Nokwa and of Christianity in Diko have significantly led to the decrease in the incidence of the gandu system. In this regard it is relevant to note the observations of Greenberg (1946) among the Maguzawa of Kano and Smith (1965) among the Hausa of Zaria that the incidence, size and functions of gandu have been greatly circumscribed under the influence of Islam. With the emphasis of Islam and Christianity on individual ownership of land and individual families as social and economic units, the essentially Moslem community at Nokwa (74.5%) and the Christian community at Diko (55.6%) - (Table C), have adopted the iyalai farming unit - (which forms 69.4% and 72.2% respectively of farming units interviewed). Discussion with farmers in the two Districts revealed that the gandu system has been subjected to strains under religious influence. At Diko, where the highest percentage of children of school-age attend schools, the increasing expenses of children's education which are borne by iyalai units further hasten the breakdown of gandu.

Mokwa and Diko Districts were formerly centres of export crop production - cotton and groundnut at Mokwa and cotton and ginger at Diko. The production of crops for cash is usually based on the iyalai farming unit from whose proceeds the payment of taxes, school fees, and the growing desire for manufactured articles are met. It therefore follows that whenever agricultural production for the market is on the increase the gandaye



farming units are invariably subjected to tensions leading to their break-up and substitution with iyalai farming units.

Opportunities for off-farm employment exist at Mokwa and Diko in contrast to its absence at Paiko and Pandogari. Even though dry season craftwork and fishing are not on a large scale as found at Katcha and Jima/Doko Districts, paid employment is found with the railways and Agricultural Research Station at Mokwa and at Abuja town which is 8 miles from Diko. As noted earlier, wherever sources of income other than from farming are available, there is the tendency for the disintegration of the gandu and the emergence of iyalai farming units; this was the case with Mokwa and Diko.

The low incidence of gandu farming units at Jima/Doko and Katcha further illustrates the growing decentralisation of farming organisation and preference for iyalai farming units noticeable in the study area and in other parts of Northern Nigeria.<sup>1</sup> In contrast to the high incidence of gandu (ofako) farming units found by Nadel (1942: 243) among the Nupe (66%) it was found that the densely populated Nupe Districts of Katcha and Jima-Doko had just 26.3% and 25.7% respectively of their farming units organised on gandaye systems. Observations and discussions with farmers on the field indicate that the incidence of gandaye is on the decline following the increasing impact of a monetary economy on agricultural production. Smith (1955), who holds that the gandu is

1. See for example Greenberg (1946); Smith (1965) and personal communications with Messrs. A.D. Goddard and B.J. Buntjer of the Rural Economy Research Unit of Ahmadu Bello University, Zaria suggest that the incidence and functioning of gandu in agricultural production at Sokoto and Zaria are on the decrease as a result of increasing impact of a monetary economy.



"essential to the Hausa", recognized that the incidence of gandu is decreasing due to high death rate, migration and land shortages. In addition, the incidence of gandu is often less when "crafts, trade and dry season cane farming were significant alternatives to grain production". Pelly Hill (1968: 243) holds that the low proportion of farming units in gandu at Batagarawa is partly explained by the high mortality of middle-aged men and the break-up of gandu on the death of the father.

There is no doubting the fact that the reasons given by the above workers as contributing to the decline in gandave incidence is in varying degrees, valid for the Katcha and Jima/Doko Districts. The abolition of slavery (on which the Nupe gandu system was originally based) and the spread of Islam have modified the form of gandave as well as leading to a measure of individual freedom of action and consequently to the development of the ivalai farming unit. As to be discussed in Chapter 5 that pressure of population on the land is one of the factors which led to individual family ownership of land in 'Cis-Kaduna' Districts of Nupeland. The incidence of gandu has been restricted in 'Cis-Kaduna' by the land tenure system resulting from pressure on the land and payment of tribute on farmlands leased from land-owners. Of the 43 tribute-paying farmers in Katcha and Jima/Doko Districts only 4 or 9.3% are in the gandu while the others are in ivalai farming units. In contrast to this, 15 or 50% of the 30 farming units who own a large portion of their farmlands were organised on gandu basis. This compares with what Pelly Hill found at Batagarawa where 11 (64.7%) of the 17 farming units who own a large proportion of farmlands were organised on gandu basis (Pelly Hill 1968:249).



The types of crops grown particularly the increasing production of rice, sugar cane and onions which are the main cash crops in Katcha and Jima/Doko Districts are in most cases produced on individual family basis. We therefore see that the increasing commercialisation of agriculture in the Districts have led to a break-up of the gandu farming units. Moreover, the 'Cis-Kaduna' Districts of Nupeland are reputed for the handicrafts practised in the Districts such as carving, cloth embroidery, dyeing, cloth and mat weaving, making raphia bags etc; they are also noted for fishing, which takes place along the valleys of Rivers Niger, Kaduna and Gbako. As noted earlier, proceeds from off-farm occupations are often excluded from gandu and the more opportunities there are for off-farm employments the lesser the incidence of gandaye farming units. Income from off-farm employment for farmers in Katcha and Jima/Doko Districts is quite substantial, and in many cases has provided capital for establishing young farmers on their own, further leading to a breakdown of the gandu system and to an increase in the incidence of iyalai farming units.

We therefore see that throughout the study area, the desirability of the gandu working unit has diminished. The increasing impact of a monetary economy and other factors such as increasing population and pressure on the land, emigration, opportunities for off-farm employment etc. have led to a decrease in the incidence of gandu as an essential unit of agricultural production. The iyalai farming unit is emerging as the ideal unit of agricultural production in response to increasing commercialisation of the rural economy. This breakdown of the traditional

socio-economic organisation of agricultural production has been accelerated in the Katcha and Jima/Doko Districts which are high population density Districts, as well as centres of commercial agriculture, trade and off-farm employment opportunities. The traditional gandu system of agricultural production is also rapidly giving way to the ivalai system in the predominantly Christian and the relatively educationally advanced Diko District.

#### Implications of the Changes for Rural Economic Development

We may now ask whether there is a sense in which the breakdown of the large traditional gandu farming units is an indication of rural economic development. In the case of the Nupe, Hadel (1942: 24) regarded the breakdown of the large centrally-controlled extended families constituting farming units as "the result of an intrinsic economic development" leading to a "readjustment between productive organisation" and what may be regarded as felt needs and demands existing in the society. Mortimore and Wilson (1965: 42) in the case of the Kano Close-Settled Zone held that "a tendency towards smaller family units and (by implication) greater individual freedom ..... point to the emergence of these places (i.e. the close-settled zone) as economic growing points and centres of social change". Johnson and Mellor (1961: 566-593) also held that the breakdown of traditional patterns of rural life facilitates rapid agricultural development. It may therefore be argued that the structural changes in the rural productive organisation is an inevitable part of the process of rural economic development. The smaller working units of the individual families (ivalai) give a comparatively larger measure of freedom to the



younger generation who are more adventurous and respond more readily to new ideas and innovation. Against the consideration of group efficiency and security offered by the gandu system stand the noticeable spread of improved agricultural practices manifested by the use of fertilisers, the greater intensive use of farmlands, particularly the farmlands and changes in crop combination increasingly oriented to a monetary economy. The younger generations are increasingly free to choose what crop combinations to grow, and to organise their time without the inhibitions imposed by the large working units of the gandu system.

#### SOURCES OF AGRICULTURAL LABOUR

Among the major determinants of the farmer's size and selection of crops grown is the type of labour available. In the study area three main sources of labour could be recognized: these are (i) family labour of the members of the farming unit; (ii) co-operative or collective labour: gawwa, (Nupe egbe and daalo); and (iii) wage-labour: lada or kodago, (Nupe kantsu). A fourth subsidiary source of labour is that rendered by sons-in-law or by tenants to land owners as a form of tribute. Table 17 illustrates the comparative importance of these sources of labour among farmers.

#### Family Labour

In an area where one of the major constraints on expansion of agricultural production is the shortage of labour it may be expected that agricultural production is dependent mainly on family labour. All the farming units depend on it, and only 21.4% of the farming units make use of wage labour. We noted earlier on that family farm work may be

**TABLE 17: FARMERS' SOURCES OF LABOUR ON THE FARM**

District	Family Labour		Collective Labour		Wage Labour		Others*		Wife works on the farm	
	No.	%	No.	%	No.	%	No.	%	No.	%
Mokwa	36	100	2	5.6	6	16.7	2	5.6	23	63.9
Pandogari	35	100	13	37.1	3	8.6	5	14.3	29	82.9
Paiko	36	100	16	44.4	4	11.1	6	16.7	32	88.9
Diko	35	100	2	5.7	5	14.3	1	2.9	31	88.6
Jima/Doko	35	100	-	-	15	42.9	7	20.0	20	57.1
Katcha	38	100	-	-	17	44.7	8	21.1	18	47.4
Study Area	215	100	33	15.3	46	21.4	29	13.5	159	74.0

\* Mainly labour from sons-in-law and farm tenants.

Source: Field Survey.



organised on gandave or iyalai basis, and that these farming units consist of adult men, their wives, children, relations and other dependents. The size of the farming unit therefore becomes a crucial factor with regard to the amount of labour available for farm work.

### The Role of Women in Family Labour

Closely connected with family labour supply in the Middle Belt is the contribution of women to agricultural and other rural activities. Even though Islamic religion is spreading in the study area as noted earlier in Chapter 3 the practice of wife seclusion (hulle) is not as widely practised as in the Muslim Sudan Zone. Only 8.4% of married men keep harems and these are found mainly in the Nupe Districts of Katcha, Jima/Doko and Mokwa, while the Gwari and Kamuku tribes of Paiko, Diko and Pandogari rarely keep harems. Even some of the moslem women in purdah at Katcha and Jima/Doko help in sowing, harvesting and processing of farm crops. Table 17 shows that 74.0% of farmers' wives interviewed work on the farm and the percentage is particularly high at Paiko (88.9%), Diko (88.6%) and Pandogari (82.9%). Women take part in practically every farming activity apart from bush clearing and ridging. They contribute to sowing, weeding, harvesting and processing, and are responsible for the sale of farm products. Many Gwari women even have their own yam plots while Nupe women at Jima/Doko and Katcha Districts own farmlands which they give out on loan or else farm by hiring labour. The collection of sheanuts, locust bean and firewood for sale is also wholly undertaken by women, and these activities bring them substantial cash returns. Female labour is therefore reckoned with in calculating the labour unit



below.

The contribution of women to agricultural production in the Middle Belt is quite high, due in the main to pagan influence. This is in contrast to the Sudan Zone where women are free from working on the farm (Goddard, A.D. et. al. 1971: 15) as a result of Islamic influence. However, Luning (1963: 62) noted that at Bamle (a mainly pagan village) in the Sudan Zone women are as industrious as their male counterparts and often have large plots of farm. We therefore see that the Middle Belt does not, in the main, suffer from the religious disadvantage which restricts the participation of women in agricultural and other rural activities. Gwari and Kamuku women are particularly active on the farm and in the sale of farm produce, while Nupe women take part in sowing, processing and marketing of farm products. Nupe women are also active traders in agricultural products, crafts and manufactured products. Many of the women are in very strong economic positions through their trading activities and assist their husbands on the farm and contribute to the upkeep of the household. We therefore see that women in the Middle Belt and the forest zone unlike their counterparts in the Sudan Zone occupy unique position in their contribution to rural economic activities.

#### Co-operative or Collective Labour

In addition to family labour on the farm there is the traditional system of mutual assistance involving co-operative or collective labour gayya (Nupe egbe, dzolo), which is common in many parts of Nigeria. Collective labour is employed if the farming unit working by itself cannot finish essential farm work on time either by reason of a small labour unit,



ill-health or old age among the members, irregular rains or an expansion of farm size which requires extra labour. Collective labour is not limited to farm work alone as it is often employed in house-building and village communal development projects.<sup>1</sup> This type of farm labour which was common in the past is now rare particularly at Diko, Jima/Dokó, Katcha and Mokwa Districts. Table 17 shows that of the farmers interviewed at Jima/Doko and Katcha Districts, none employed collective labour while only 5.7% and 8.3% of farmers at Diko and Mokwa Districts respectively employed collective labour.

One may ask why collective labour, which used to be a main source of labour on the farm, has lost its importance. The answer to this is not far-fetched. The primary advantage of collective labour lies in the time-saving which it makes possible and this is secured at a cost - in terms of payment for food, drinks and drummers as well as time spent in working communally when invited by other farmers. The money and time thus spent could be spent on hiring labour that would work to the farmer's specification. Sayva participants maintain a low standard of work on the farm, while young farmers do not benefit from sayva as this form of collective labour is limited to elders' farms. The elderly farmer does not fully benefit from sayva in view of the low standard of work, while the young farmer is not supposed to benefit from sayva at all. If there is need for extra labour on the farm, the farmer now relies on hired

1. For details of the organisation of collective labour among the Nupe and Gwari tribes, see: Nadel, S.F. (1942), *A Black Byzantium*, pp. 248-251 and Hassan & Na'ibi (1962), *A Chronicle of Abuja*, p. 41.



labour rather than on gayya, or alternatively either reduces his scale of farm operation or works extra hours on the farm. Collective labour has increasingly become an insignificant source of labour as its practice is suited mainly to a subsistence economy and not to the increasingly commercialised agriculture of the study area.

#### Wage Labour

The third source of labour on the farm is wage labour lada or kodago (Nupe - Kantsu). Wage labour is frequently employed whenever the labour available within the farming unit is insufficient for the work on the farm. It is also employed by part-time farmers such as craftsmen, Mallams and salaried workers. Wage labour is preferred by the farmer as he can exercise greater control on the quality of the work done as compared with gayya. With the decline in gayya and gandu farming units, the increased scale of operation on the farm and the increasing attendance of children at school, the employment of wage labour is rising particularly at Katcha and Jima/Doko Districts.

Table 17 shows that 21% of farmers interviewed employed wage labour on their farms and even though this percentage is lower than 38% obtained at Batagrama by Polly Hill (1968: 249), observation in the field show that the employment of wage labour has become a regular feature of agricultural production. The high population density Districts of Katcha and Jima/Doko, where agriculture is most commercialised and where the greatest opportunities for off-farm employment are found, have the highest percentages of farmers who employ wage labour - 45% and 43% respectively. This is in contrast to the other four Districts where less than 17% of the



farmers employ wage labour. As earlier noted, the four Districts (particularly Paiko and Pandogari) have few off-farm employment opportunities while the degree of agricultural commercialisation is less than those of Katcha and Jima/Doko Districts.

There is, however, a general shortage of wage labour in this part of the Middle Belt. In the case of the Sudan Zone, Luning (1963: 75) observed that "there seems to be always surplus labour" and that "the main limiting factor in employing paid labour appeared to be the lack of money on the part of the employer". This observation is supported by Grove (1957: 40), Mortimore and Wilson (1965: 45) and Polly Hill (1968: 245). In contrast to the apparent excess supply of farm labour (to demand) in the Sudan Zone, the Middle Belt suffers from excess demand for farm labour and shortage of supply. Unlike the situation in the Sudan Zone where farm labourers are drawn from small farmers with insufficient land to fully employ them, all farmers (apart from a few in 'Cis-Kaduna' Districts of Katcha and Jima/Doko) have sufficient land to employ them fully. Apart from the need to pay bride price and in some cases annual tax, young farmers in the Middle Belt have no cause to work as farm labourers as they have enough land to keep them fully occupied.

The relatively high percentage of farmers who employ wage labour at Katcha (44.7%) and Jima/Doko (42.9%) Districts draw the labourers from itinerant Hausa labourers and from farmers with insufficient farmlands (the result of the land tenure system and high population densities discussed in the next chapter). In the other Districts wage labour is secured from Hausa immigrants, but within a year or two such immigrants



secure farmlands and cease to become farm labourers; hence in no case has wage labour become a permanent exclusive occupation or a regular means of supplementing farm income, for a class of hired, land-less farm labourers has not yet evolved. The shortage of farm labourers remains one of the major problems of rural economic development in the study area and many farmers are unable to expand their scale of farm operations because of inavailability of farm labourers. The shortage of farm labourers has nothing to do with low wages as daily wages ranging between 3/6 and 5/- compare favourably with daily wages ranging between 2/6 and 4/- in the Sudan Zone. The shortage of farm labourers is therefore due to the sparse population and to the ease of acquisition of farmlands by immigrant farm labourers in the area.

#### The 'Land Surplus' Theory in Relation to the Middle Belt

With reference to the continuing debate about 'labour surplus' economies in underdeveloped countries (Lewis, A. 1954; Fei, J. and Ranis, 1964) discussed in chapter two, it appears that the problem of rural economic development in the Middle Belt is not that of 'labour surplus' or 'disguised unemployment' but that of 'land surplus' whereby land for agricultural production is available<sup>1</sup> in plentiful supplies but the human resources available under present cultural methods of production are too few to utilise the land resources. The problem of development is, unlike in other parts of Nigeria and other underdeveloped countries, that of a 'land surplus) economy (Helleiner, K.H. 1967). The

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1. Even in the 'Cis-Kaduna' Districts where population densities are high farmlands are still 'available' for development though at a price in terms of tribute payment.



present situation is one of limited agricultural production as a result of shortage of labour rather than from any lack of cultivable land. In this connection, Grove (1961: 115 & 125) observed that where population densities are low in Northern Nigeria (as in the Middle Belt) land use is commonly unspecialized, while high densities ranging between 150 and 200 per square mile and over are "generally associated with much more efficient use of the land, giving higher production per unit area". The comparatively specialised and commercialised agriculture in the densely populated Jima/Doko and Katcha Districts where farm labour is more available and where agricultural land use is more intensive than in the sparsely populated Districts show how relevant this observation is to the Middle Belt. The present population density in the study area and in the Middle Belt as a whole is below the 70 to the square mile estimated by Nash (1948) to be the minimum required to cope with the re-slashing of bush to eradicate tsetse flies and expand the level of agricultural production. In addition it is lower than the density of the carrying capacity of the land (177.8 to the square mile) calculated in chapter six. The shortage of labour to farm the large expanse of fertile land within the study area limits not only the intensity of cultivation but also the scale of operation of farming activities. It is therefore clear, that given the prevailing techniques of production in the Middle Belt, rural economic development and a more intensive utilisation of the resources depend on an increase in the population and consequently on the labour force.

#### LAND AND LABOUR RELATIONSHIPS

In discussing the land and labour relationships we focus attention



on the farming unit labour available for farm work and the main factors determining the size of farm cultivated by a farming unit.

### Labour Unit

It should be noted that not all the members of a farming unit are in a position to contribute equally to farm production by reason of age, sex, and opportunities available for off-farm employment. It is therefore necessary to differentiate between the members of the farming unit who contribute to the earning capacity of the unit on the farm. In order to measure the total potential of labour unit available for work on the field, labour unit equivalents were assigned to different sex and age groups.<sup>1</sup> In working out the labour units it was assumed that physical labour productivity shows initially a positive correlation and then a negative correlation with increases in age. In addition, it was assumed that the physical productivity of women is lower than that of men (Norman, D.W. 1967: 8). On the basis of these assumptions the labour unit equivalents (given below) were assigned and Table 18 illustrates the average size of farming units and labour units.

It is appreciated that labour unit measure is arbitrary in nature but as Norman (1967: 30) has observed, it is "more realistic to discuss economic phenomena in such a way rather than in terms of family size".

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1. In assigning labour unit equivalents to different sex and age groups the author benefited from discussion with Dr. D.W. Norman and Mr. A.D. Goddard both of the Rural Economic Research Unit of Ahmadu Bello University who were carrying out rural socio-economic studies in Zaria and Sokoto respectively. However, the labour unit equivalents assigned to the different age and sex groups are different from those of Dr. Norman and Mr. Goddard.



Age	Sex	Labour Unit Equivalent
Less than 6	Male and female	0.00
7 - 14	Male and female	0.50
15 - 49	Male	1.00
15 - 49	Female	0.50
50 and above	Male and female	0.25

Polly Hill (1968: 249) in arriving at a "weighted population" of the farming unit counted children, unmarried girls and infants as "half-adults". She apparently did not 'compute' female labour but held that "the number of working males in a farming unit may only be a rough measure of its effective strength". Table 17 shows that 70.7% of farmers' wives work on the farm, and in view of the degree of participation in farm work undertaken by Gwari and Kamuku women, we held that in calculating the amount of labour available for farm work, the labour unit is more meaningful than the number of working males. Even in Islamic Nupe Districts where women are increasingly involved in trading, they also assist in planting, harvesting, processing and transporting farm crops as well as in silviculture. As noted in Chapter three, children over the age of six also contribute to labour on the farm. In view of the contribution of women and children to agricultural production, it may therefore be hypothesized that the size of farms and crop combinations reflect the size of the labour unit and not necessarily the number of working males.



**TABLE 18: AVERAGE SIZE OF FARMING UNITS, LABOUR UNITS AND FARM ACREAGES**

District	Farming Units	Size of Farming Units			Labour Unit Per Farming Unit*			Average Acreage Per Farming Unit	Average Acreage Per Labour Unit
		Min.	Max.	Av.	Min.	Max.	Av.		
Mokwa	36	4	15	9.6	2.5	7.5	3.9	9.7	2.5
Pandogari	35	3	20	10.7	1.5	1.5	4.4	9.8	2.2
Diko	36	3	15	7.7	1.5	4.0	3.1	7.5	3.4
Paiko	35	5	15	9.2	2.5	8.25	4.2	11.0	2.6
Jima/Doko	35	3	23	9.6	3.0	8.0	3.6	7.9	2.2
Katcha	38	3	15	8.2	1.5	7.0	3.1	7.1	2.3

\* Wives (in purdah) who do not work on the farm at Mokwa, Jima/Doko and Katcha are not accounted for.

Source: Field Survey.



The average number of labour units per farming unit is 3.7 though the labour units at Pandogari and Paiko (4.4 and 4.2 respectively) are higher than the average for the total Districts. This reflects the higher degree of participation in farm work by women in view of the non-seclusion of women and few opportunities for off-farm employment in the two Districts. At Katcha and Jima/Doko a few of the farmers (18.4%) keep their wives in purdah, and there are more opportunities for off-farm employment the percentage of women who work on the farm is lower (47.4% and 57.1% respectively) so that the labour units for Katcha (3.1) and Jima/Doko (3.6) as well as for Diko (3.1) are less than the overall average of 3.7.

#### Determinants of Size of Farm

It was earlier hypothesized that the size of farms reflects the size of the labour unit within the farming unit and in view of this we may ask whether the size of the average labour unit affects the average farm acreage. In this regard, it has been claimed that "in many parts of Northern Nigeria ..... the size of upland farm holdings is determined by the size of family or more exactly by the labour available per family for farm work" (Luning, H.A.A. 1963: 51). This claim has been supported by socio-economic studies in Zaria (Norman, D.W. 1967: 34 & 40) and in the Sokoto Close-Settled zone (Goddard, A.D. et. al., 1971: 38) where family size and labour units available are found to be significant as a class of hired, land-less farm labourers has not yet evolved. In addition, cultivated acreage is held to be closely related to the consumption requirements of the farming unit.

Table 18 gives the average acreage of farms per farming unit and



per labour unit, and with the figures given in the Table, an attempt was made to find the correlation between average labour unit and average acreage per farming unit. The correlation co-efficient was found to be 0.93 and the co-efficient of determination was 0.87. This in effect means that average labour unit accounts for as much as 87% of the average farm acreage. When the correlation co-efficient was subjected to the student 't' test, it was found that the 't' of 0.87 was significant under 0.29 at 25% level of the 't' distribution. This in effect indicates that the number of labour units in the farming unit available for farm work is very significant in determining the size of farm acreage cultivated. In addition, the cultivated acreage would be closely related to the consumption requirements of the farming unit.

It is recognised that other factors affect the size of farm cultivated such factors as the possibility of spreading labour on the farm over the whole year as in fadama cultivation and irrigation farming; the fertility and ease of working the land; and opportunities for off-farm employment are known to affect farm acreage cultivated. The size of labour (population) is however the main determinant of the acreage of farm land cultivated in the Middle Belt as the amount of labour available in a hand labour economy imposes definite limitations on the acreage of land that could be cultivated. It would be shown later in the study that the intensity of land use and the percentage of land cultivated as well as land tenure systems in different parts of the study area show high correlation with population density.



CHAPTER FIVETHE ORGANISATION OF AGRICULTURAL LAND

The organisation of agricultural land is one of the most complex and most delicate of problems in rural economic development, and it has been recognised that "traditional farming methods and systems of land tenure inhibit an extensive use of land for farming" and constitute impediments to efficient agriculture in Nigeria (Nigeria, 1962). The need to examine the present land tenure system in relation to the population density and to its effects on rural development in the study area can scarcely be over-emphasized. The acceleration of its agricultural development depends to a large extent on the possibility of free movement and settlement of farmers in different parts of the area. Of particular relevance to a part of the study area is Oluwasanmi's observation that "land is not the limiting factor of size in Nigerian agriculture but ..... a tenure system and social organisation which render it virtually impossible for farmers to move freely from regions of high population density to areas where land is in excess supply are the real factors limiting both the scale of operation and the volume of output in agriculture". (Oluwasanmi, H. A. 1960: 234-241). The study area provides contrasting examples of areas where free movement and settlement of farmers are possible and areas where 'vacant' agricultural land may not be available for agricultural development owing to the existence of a complex land tenure system.

Objectives

In this study, land tenure is regarded as "the body of rules which govern the allocation of land, the practice of cultivation and the



apportionment of produce as well as the whole relationship of man to the soil" (UNFAO 1965: 105). The interrelationship between the agricultural population and the control of land resources is considered of paramount importance because land tenure structures are closely tied with rural economic development.

The objectives of this chapter are therefore two-fold: (i) to examine the characteristics and trends in the land tenure systems; and (ii) to discuss the implications of the present land tenure system for rural economic development in the study area.

In achieving these objectives we make the following assumptions: (1) With the growth in population, land tenure has a natural tendency to evolve from a communal system of ownership to a system of individual family ownership; (2) Demand for agricultural land in areas with locational advantage such as developed transportation and marketing facilities for farm crops leads to the development of individual ownership of agricultural land; (3) Inter-zonal differentials in the availability and ease of acquisition of farmland in Nigeria lead to a redistribution of rural population and increased agricultural production.

#### LAND TENURE SYSTEMS

Agricultural land in Nigeria is usually regarded as communally owned (Meek, C. K. 1957), and this communal ownership has been defined as "the situation in which a community exercises control, occupation and use of a landed property. The right of transfer and reversion is exercised only by the community as a whole" (Adegbeye, R. O. 1964). This traditional view of



land ownership in Nigeria does not take into account the varied land tenure systems among different communities in Nigeria as there are "as many tenure systems as there are ethnic groups" (Oluwasanmi, H. A. 1966: 25). Apart from ethnic groupings in Nigeria, the form of land tenure is also affected by the density of population and the form of land-use undertaken in different parts of the country. The fact that social organisation and relationships are subject to changes through time also influences the type and changes taking place in land tenure systems.

Two systems of land tenure are recognised in the study area:

- (i) Communal ownership of land, and
- (ii) Fief-holds and individual family ownership of land.

#### (i) Communal Ownership of Land

Much has been written on the subject of communal ownership of land in Nigeria\* and in this section we highlight the main features and trends in communal land tenure in the study area. The areas where communal ownership of land is in vogue are the sparsely populated Districts of the study area. These are in the Low Density and Medium Density Districts given in Table 5 with the exception of Badeggi, Abuja Town and Agale North (Kintifi) Districts where partial fief-holds and individual family ownership are found (Fig. 13).

Fig 13

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\* For details of traditional land tenure systems in Nigeria, see: (i) Neek, C. K. (1957), Land Tenure and Administration in Nigeria and the Cameroons, (London); (ii) Cole, C. W. (1948), Report on Land Tenure, Niger Province, (Kaduna); and for a summary of the main concepts, see Oluwasanmi, H. A. (1966), Agriculture and Nigerian Economic Development (London), pp. 25-31.

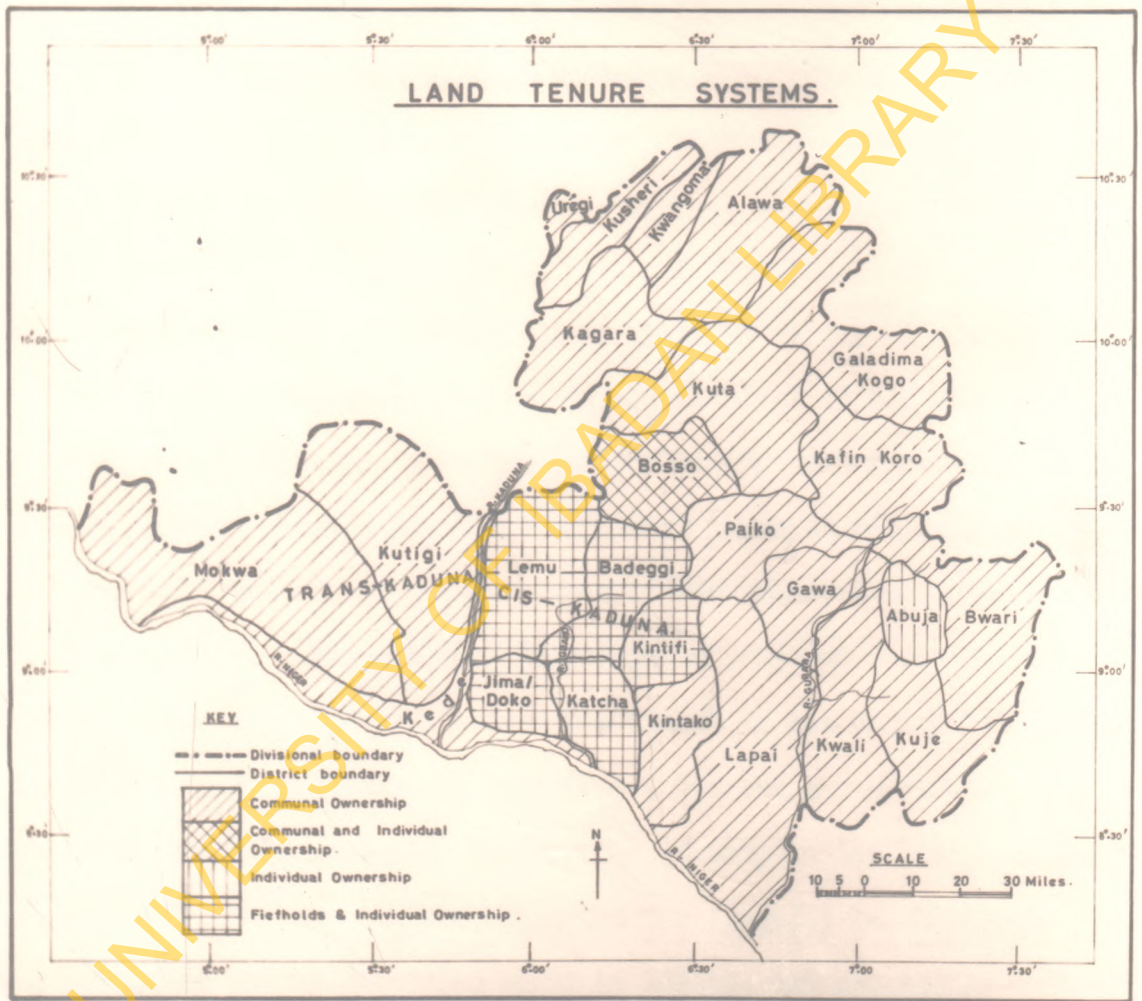


Fig 13.



In the sparsely populated Districts, land is regarded as the property of the community and land is held and controlled by the community as a whole. Authority in land matters is vested in the village head and whenever new land is to be opened up anywhere or a stranger seeks land on which to farm and settle, the village head has to be consulted. Any dispute with regard to farmland is referred to the village head who, in consultation with the elders settles the dispute. The village head is regarded as the "land lord" (not to be confused with "landlord"), deriving his powers and authority with regard to the land by virtue of his official position. His authority over the land is not personal to him and is only exercised after consultation with and in conformance with the decisions of the elders, without whose consent and agreement he could not act.

The peasant cultivator has by virtue of his membership of the village community a right of user, and this he enjoys in perpetuity for as long as he decides to use the land in a manner beneficial to him and to his village community. As long as the farmer contributes his own quota to the maintenance of the village community (in form of tribute to the Amir, before the British rule, but now in form of income tax (Haraji) to the Local Authority) he has the usufructuary right to select, use and occupy such of the communal land as may be available for his occupation and use and as may be required for his dependants' needs. He retains all the proceeds from the land and tills the land until it is exhausted and not worth cultivating further. He then selects another site following which he immediately loses all rights in the former piece of land, which reverts to



the village pool. He however has a right to the sylvan produce on the land for three years after he has abandoned it. After that, the trees become free for all and anybody can collect their produce, in the same way as they can collect from trees in the uncultivated bush.

Table 19 shows that large percentages in the sparsely populated Districts of Bwari (Diko), Mokwa, Paiko and Kwangoma (Pangodiari) are obtained from communal land, while apart from the fadama farms which the immigrant population regard as being on loan to them, farmlands in the four Districts are essentially communally owned. There is however a tendency for farmers to assume that fadama farms are inherited from their parents as fadamas are continuously cultivated. In contrast to the communally owned farmlands in the sparsely populated areas, farmlands in Jima/Doko and Katcha Districts are in fixed hands and only 7.6 and 3.6% respectively of upland farm (and none of fadama) acreages are obtained from communal land.

#### Evolution of Individual Land Ownership

The broad concepts of communal ownership of land described above still prevail in the sparsely populated districts of the study area, though there are certain trends which one can recognise as gradually leading to the evolution of individual ownership of farmlands. Among these are the following:

(1) Certain specific areas of village farmland are being recognised as farmlands 'usually' cultivated by certain families. For example, at Kampani Gbanta village about  $2\frac{1}{2}$  miles north-east of Paiko, the farmlands



**TABLE 19: AVERAGE ACREAGE AND PERCENTAGE OF LAND TENURE OF FARMLANDS BY A SAMPLE OF FARMERS**

District	Population Density <sup>2</sup> per/ml.	Farm Type	Average Acreage	Communal %	Inheritance %	Lease or Loan %	Gift %	Total %
Katcha	84	Gona <sup>1</sup>	4.6	3.6	46.5	43.1	6.8	100
		Fadama <sup>2</sup>	2.5	-	23.0	74.2	2.8	100
Jima/Doko	80	Gona <sup>1</sup>	5.2	7.6	41.2	49.3	1.9	100
		Fadama <sup>2</sup>	2.7	-	29.1	68.3	2.6	100
Paiko	41	Gona <sup>1</sup>	10.8	75.4	-	-	24.6	100
		Fadama <sup>2</sup>	0.2	69.6	-	12.2	18.2	100
Bwari (Diko)	32	Gona <sup>1</sup>	10.2	77.9	-	-	22.1	100
		Fadama <sup>2</sup>	0.3	68.3	12.1	-	19.6	100
Mokwa	15	Gona <sup>1</sup>	9.1	84.9	2.5	-	12.6	100
		Fadama <sup>2</sup>	0.6	48.2	24.2	18.7	8.9	100
Kwangoma (Pandogari)		Gona <sup>1</sup>	9.6	57.4	-	-	42.6	100
		Fadama <sup>2</sup>	0.2	67.7	-	13.2	19.1	100

1. Upland farm
2. Lowland farm

Source: Field Survey Questionnaire Analysis.



north of the village are 'usually' farmed by the Marafa family while those to the south of the village are usually farmed by the Kampani family. The two families are gradually recognising the family ownership of specific areas of farmland and members of the individual families do not farm on each others' farmland as there is abundant farmland in the different sections of the village land. This tendency to recognise certain farmlands as farmlands 'usually' cultivated by specific family members is gradually leading to individual family ownership of farmland.

(ii) The founding of new villages (hanga in Nupe) following population growth and the tendency of farmers to live on their farms are gradually introducing the concept of individual family ownership of land. Many immigrant Hausa in Bwari, Paiko and Kwangoma Districts who reside on their farms regard the land as 'gifts' to them. Hence the percentage of land regarded as 'gift' indicated in Table 19 is gradually rising. Formerly used fallow land (gonta) which used to revert to the community after a period of three years is gradually being regarded as family land, and the sylvan produce from such lands, such as Shea-nut, locust bean and oil palm is now regarded as belonging to individual families. Furthermore, compound land (bayan gida - 'the plot at the back of the house') in the immediate vicinity of the hamlet is now recognised as inheritable and family property as distinct from communal. Such plots are however not sub-divided on inheritance but are passed on to the senior male member of the family.

(iii) There is a growing immigration of farmers from the Sudan and



forest zones of the country (particularly from the former) who settle in the sparsely populated areas and who are accorded customary rights of use of land. In the Nupe Districts of Mokwa and Kutigi, strangers are usually introduced to the Village Head by a local Head of household - mitso - who vouches for the character and reputation of the applicant. The case of such a stranger is discussed in the village council of elders and after token gifts of kola nuts, fowls and in some cases money varying between £1:1/- and £2:10/-, the stranger is given land on which to settle and farm. He subsequently does not pay any rent and is not under any obligation to give part of his crop to the Village Head, though it is often considered good gesture to give token produce to the mitso and village head in the first two years. In the Kamuku and Gwari Districts of Kwangoma, Paiko and Dwari, immigrant farmers are encouraged to settle and identify themselves with the community. Such immigrants are assisted to settle by being given free farmland and are exempted from taxation for one or two years while in many cases communities lend a helping hand in building the immigrant's hut. After two years of proven good character, he is accepted by the local community as one of themselves, and can obtain land in the same manner and on the same terms as the local peasantry.

The District Heads of Kwangoma and Paiko were unanimous in their views on the need to make generous offers of farmland to prospective immigrants. It was their view that if strangers were encouraged to settle, agricultural produce and marketing would be enhanced while proceeds from taxation required for local development projects would be increased. The



Emir of Abuja also enjoins District and Village Heads to encourage immigrants of proven good intention and character to settle within his Emirate and engage in agriculture and trade<sup>1</sup>. This 'open door' policy and common sense principle, if carefully and sincerely pursued, will lead to increase in both rural population and rural agricultural production. We noted earlier that of the 914 tax-payers in Kwangoma District in 1958/59, 65 or 7.1% were immigrant Hausas while in 1968/69, Hausa tax-payers' population increased to 185 (15% of 1,234 taxpayers) thus accounting for 37.5% of total increase in taxpayers. A process of rural population re-distribution in Nigeria is taking place as Hausa settlers from Zaria and Katsina are found in Kwangoma Districts; southern Zaria tribal groups, Fulani and Nupe, are found as settlers at Paiko while all over Abuja Emirate are found Hausa (mainly from Kano in Kano State), Nupe, Bassa and Gwandara settlers particularly in Bwari and Kuje Districts as at Wuse. It may be observed however, that while tribesmen of Northern Nigerian origin settle down as farmers and intend to make a home of their new environment, southern Nigerian tribesmen settle mainly as traders and artisans.

The immigration of farmer settlers into the area where farmland is communally owned is gradually introducing the concept of individual ownership of land. The immigrant farmers usually regard their farmlands as 'gift' over which they have absolute control short of alienation. They regard their farmlands as inheritable by their children (though not by others as they can neither loan, lease nor sell the land). Most of the immigrant farmers are Muslims and as noted in Chapter 3, Islam is having effects on

1. Discussion with the District Heads and Emir during the field survey.



the socio-economic organisation of the people so that there is the tendency to apply the Maliki Law of Islam to land ownership.

(iv) The commercialisation of agriculture and the rising value of fadama as valuable agricultural land have led to the continuous cultivation of fadama, particularly for the production of rice, sugarcane, onions and vegetables. Farmers are increasingly regarding their fallow lands and fadamas as inherited and 'individually' owned.

The retention of rights over fallow land and continuous cultivation of fadamas can be regarded as an evolutionary process following population growth and increasing commercialisation of agriculture. The fallow land and fadamas will gradually be regarded as 'ancestral lands' leading to individual family ownership. The present system of communal ownership of land is however still flexible enough to accommodate and provide for new settlers, leading to increase in rural population and production.

#### (ii) Fiefholds and Individual Family Ownership

In order to understand the factors which have led to fiefholds and individual family ownership of land in parts of the study area, a short review of the historical development of land tenure system in Northern Nigeria is relevant. The basis of land tenure in Northern Nigeria was communal whereby residents within a community (usually the village) had the right to use as much of the land of the community as they and their dependants required.

When the Fulani conquered the Hausa States and most of the territory



in Northern Nigeria in the early nineteenth century they arrogated to themselves ownership of the land. This is in conformity with the Maliki Law of Islam which stipulates that all "lands which come into the possession of the Faithful through conquest, except waste and unclaimed lands, become wakf, that is, are tied up immediately after the conquest" (Ruxton, F. H. 1916: 78). The lands of the conquered people are regarded as khami or tribute lands and conquered people are allowed to remain in possession, on condition that they pay tribute in perpetuity to Islam (neek, C.K. 1957: 165).

For administrative purposes and for easy collection of tributes, the Fulani conquerors parcelled out the lands of each emirate into estates and gave them out as fiefs to military leaders, members of the royal household, Wallams and personal friends. This feudal arrangement subjected the conquered population to Fulani rule and guaranteed regular flow of tribute as revenue came from estates farmed by slaves and clientele, while free men were obliged to render produce and labour.

The Fulani Emirates of Northern Nigeria were conquered by the British early in this century, and Lugard arrogated to the British the ultimate rights in the land (though the rights remained undefined) and declared that "the land in theory belongs to the Suzerain, hitherto the Fulani Emir, and now the British Government". This declaration formed the basis of the Lands and Native Rights Proclamation (1910, amended in 1916) which conferred upon government absolute control and ownership of land in Northern Nigeria. In the exercise of his powers Section 5 of the Ordinance, however, required the Governor to have "regard to the native laws and customs existing in the



district in which such land is situated". This section of the Ordinance, argues Oluwasanmi, "is in effect a confirmation of the customary rights of the individual peasant to occupy and use a portion of the land of his community". (Oluwasanmi, H. A. 1966:34).

The high density of population in the Nupe Districts of Lemu, Jima/Doko, Badeggi, Katcha and Agaie North (Kintifi), which are all situated east of the River Kaduna (Cis-Kaduna), owe its origin to the historical fact of the Fulani conquest of Nupe land. After the conquest, the Fulani rulers with their huge army of warriors, slaves, courtiers and other dependants immigrated into the Districts, where they settled, occupied the land, and built their capital and numerous villages (Nadel, S. F. 1942: 11). Similar settlements also took place in Abuja Town District of Abuja Emirate. Following the dislodgement by Fulani of the Habe King of Zazzau from Zaria in 1804 he settled in Abuja with his forces, consolidated his defences and attracted a large number of settlers into Abuja Town District. The Districts in 'Cis-Kaduna' and the Abuja District of Abuja Emirate therefore owe their present relatively high population densities to these two historical settlements.

The high population densities has led to the development of a complex system of land ownership and land transfer and this, observed Dr. Nadel, "reflects the attempt of the people to counteract the pressure on the land". (Nadel, S. F. 1942: 181). All farmland is in fixed hands owned mainly by members of the royal houses of Bida and Agaie, fiefholders, former warriors and slaves as well as Mallams who claim ownership of the land as inheritance



from their ancestors who had either once farmed the land, owned the estate or had the land granted to them by a former Fulani Emir or a powerful feudal lord.

In 1906, Lugard reported that there were 76 fiefholders in Nupe Division (Lugard, D. F. 1906: 830), and in 1948 the Chief Scribe of Bida Local Authority compiled a list of 147 fiefholders owning land in 457 villages in Bida Emirate (National Archives File No. B 1532: 17-21). During the field survey, the list of fiefholders could not be compiled without the co-operation of the Local Authority. Table 19 however shows the existence of individual ownership of farmland in the percentage of total acreage of farmland on loan or lease from fiefholders at Jima/Doko and Katcha Districts - 49.3% of upland (gona), 68.3% of lowland (fadama) and 43.1% of upland and 74.2% of lowland farms respectively. This is in contrast to the situation in the sparsely populated Nupe Districts where no upland farm is on loan or lease terms while very low percentages of fadama farms were on loan or lease terms - 18.7% at Nokwa, 13.2% at Kwangoma, 12.1% at Paiko and none at Bwari. In addition to these, it was found during the field survey that about 70% of farmland at Doku and 60% at Kutiriko, north-east of Agale was 'owned' by the Emir of Agale. Over 60% of the land in Jima/Doko District is 'owned' by Bida fiefholder families and of this the Yerima (deputy to the Emir) 'own' about half; Etsu Usman ruling House a quarter and the remaining quarter is owned by the Makun and Shesi families while only about 40% of the total farmland is owned by the occupying peasantry. Virtually all the farmland at Edogi and Vunchi villages belongs to



the Yerima and his agents at Kusegi village. Farmlands at Katcha District belong in the main, to the Etsu Usman ruling House, the Shesi family and other Mallams and fiefholders at Bida. The fadama farmland, in Edozhigi in Lemu District, is claimed by the Usman Zarki ruling House of Bida and this is in spite of the land being declared a 'settlement area' for the establishment of the Edozhigi Irrigation Scheme. Such areas of farmland which are not claimed by fiefholders in the 'Cis-Kaduna' Districts are 'owned' by the individual families of the local population, while there is also found an indigenous landless class of farmers whose parents have been tenants on estates of fiefholders. The present situation is such that land cannot be claimed on the grounds of membership of the village community nor can the local farmer exercise his right of occupancy. In effect, a de facto individual ownership of land has evolved in the 'Cis-Kaduna' Districts of Bida and Agale Emirates.

In the predominantly Hausa Abuja Town District, there has been a definite development of the concepts of (1) family and individual rights of inheritance on particular pieces of land which have been formerly farmed by ancestors; and (2) the continued ownership of trees on abandoned farms. A similar tendency for individual ownership of land to increase in other Hausa units of Northern Nigeria has been observed by Rowling (1949) in Kano Province, by Cole (1948) in Zaria Province and by Luning (1963 and 1965) in Katsina Province. There also exists the idea of individual fallow lands as distinct from a general communal fallow, while the fadama is kept under more or less constant cultivation with very short resting periods between



the cropping seasons so that individual ownership of fadama is an acknowledged fact. Individual family land ownership in Abuja Town District is generally accepted by the community which regards it as an inevitable consequence of population growth. It is significant however, that apart from a 15-acre piece of fadama reserved for the titled class gandom sarauta, there are no freeholds or absentee landlords in Abuja Town District and even in the whole of Abuja Emirate. This original system of habe land tenure is in sharp contrast to the basically feudal system perpetuated by the ruling Fulani in Nupeland.

Four factors have probably been responsible for the evolution of individual family ownership of land in the 'Cis-Kaduna' Districts.

- (i) The high density of population;
- (ii) The institution of freeholds following Fulani conquest of Nupeland and the adoption of Islamic religion which recognises individual ownership of land;
- (iii) The commercialisation of agriculture particularly the growing importance of rice as a cash crop with consequent increase in the value of fadama suitable for rice production.
- (iv) The locational advantage of 'Cis-Kaduna' Districts following the greater development of marketing and transportation facilities as well as the cultural attachment to the Districts.

As stated earlier, the 'Cis-Kaduna' Districts have high population densities, and the evolution of an individual family ownership of land may be regarded as an attempt by the community to regulate land use among the



population. Population pressure on the land was even more severe in the past as higher population densities were previously recorded in the Districts. For instance, the populations of Jima/Doko and Badeggi Districts in the 1931 Census were 31,761 (112 persons per square mile) and 21,143 (47 persons per square mile) respectively, while in 1952, the population of the Districts fell to 22,699 (80 persons per square mile) and 15,325 (34 persons per square mile) respectively. These show that population pressure on the land was more severe in the past than at present, so that there was a need to regulate land usage by the recognition of individual family ownership.

The institution of fiefholds has been upheld and perpetuated by the ruling Fulani and has thus become part of the socio-economic organisation of Nupe life despite its being at variance with the Lands and Native Rights Proclamation (1910) and Lugard's claim in 1906 that "the old fiefholders (in Nupe Division) have been abolished". (Lugard, D. F. 1906: 830). The Islamic Law of inheritance (Maliki Law) is being invoked to support the perpetuation of fiefholds, and when in 1944 this state of affairs was officially brought to light and the colonial administration informed the Bida Local Authority that the practice of fiefholds was not in accord with the 1910 Proclamation, the Bida Local Authority held a contrary view and insisted that it was "in accordance with Section 5 of the Ordinance which reads: 'the Power of the Governor should be exercised with regard to Native Laws and Customs'". The Local Authority put forward the view that what was being paid by the peasant farmer was "Zakat", an Arabic word meaning 'tithe', a religious obligation for a moslem to give out of his



wealth or farm products a prescribed portion with sincere and pious intention of giving". (National Archives, Kaduna, MinProf File No. B 1332, p. 5). The patron (fiefholder) owes his tenant complimentary obligations, as a relationship of patronage and protection (albeit now obsolete!) exists between the client (hara) and the fiefholder. This still remains the official view of Bida and Agala Local Authorities, despite the undertaking given by the Etsu Nupe of Bida on 15th December, 1945 that he had "instructed all the fiefholders in Bida Town that the receipts of presents voluntary or involuntary have been prohibited as from December the 14th, 1945".

As to the attitude of farmers to the payment of tribute, Table 20 indicates that a large percentage (88.4%) of tribute-paying farmers interviewed were against the payment of dzanka, which they now regard as a form of exploitation, and its continued payment is thus a source of latent discontent among the local peasantry. The fact that the occupier cannot purchase the land for money further perpetuates the fiefholder's hold on the land and subjects the occupier and his descendants to perpetual tenancy so that a class of landlord and landless peasant is gradually growing up.

The growing commercialisation of agriculture, particularly the production of rice as cash crop has encouraged farmers to consolidate their holdings especially the fadama which are most suitable for rice production. The fiefholders and 'land-owners' have also effectively established their 'ownership' of farmlands so that they can give out the farmlands on lease and loan (aru, hara) terms and receive dzanka (now paid in both cash and kind) from those who occupy the farmland.



Table 20

TRIBUTE PAYMENT IN JIMA/DOKO AND KATCHA DISTRICTS

District	Farmers Interviewed	Tribute Paying Farmers*		In Support of Tribute Payment		Against Tribute Payment*	
		No.	%	No.	%	No.	%
Jima/Doko	35	22	62.9	3	13.6	19	86.4
Katcha	38	21	55.3	2	9.5	19	90.5
Total	73	43	58.9	5	11.6	38	88.4

\* Percentage based on the views of farmers who pay tribute as those who do not pay tribute are land owners or agents who give out farmland on lease or loan terms.

Source: Field Survey Questionnaire Analysis.

Thus we see that the higher density of population in the 'Cis-Kaduna' Districts of Nupeland and in the Abuja Town Districts of Abuja Emirate has led to the evolution of individual family ownership of land. The evolution of individual family ownership of land has been further enhanced by the persistence of a socio-political organisation (reinforced by Islamic religion) which perpetuates the old fiefholds as well as by the increasing commercialisation of agriculture. It may be observed however that unlike in other densely populated parts of Northern Nigeria such as Kano Province (Rowling, C. W. (1949) and Zaria (Cole, C. W. 1948), where occupancy



rights are accepted as valid in the evolution of individual tenure of farm-lands, occupancy rights are not valid as claim to ownership of land in 'Cis-Kaduna' Districts of Nupeland. The usufructuary right of the farmer can be terminated at will by the 'land owner' as happened to two farmers at Edogi in Jima/Doko District shortly before the cropping season in 1969 following charges of lateness in rendering dzanka to the fiefholder. Inheritance of ancestral lands, which is regarded as the 'normal' means of land acquisition in the Kano Close-Settled Zone (Mortimore, M. J. and Wilson, J. 1965: 10), is applicable mainly to the descendants of fiefholders and the nobility in this relatively densely populated Districts of Nupeland.

In the 'Cis-Kaduna' Districts the marketing of farm produce and the transportation facilities have been developed, thereby providing assured markets and high prices for the farmer's products. There are many periodic markets where the farmer can sell his products to itinerant traders (such as at Bida, Doko, Jima, Badeggi, Agaie, Lemu, Katcha and Baro). In addition to the market centres, transportation facilities - roads, rail and river transports - are better developed and these aid the evacuation of farm produce within the Districts as well as to other market centres of the forest and Sudan zones of Nigeria. Such market centres as Badeggi, Katcha and Baro are served by rail while both Katcha and Baro are important inland ports on the River Niger. On the other hand, the sparsely populated Districts where farmers do not pay tribute suffer from poor marketing and poorly developed seasonal transportation facilities. Whereas the farmer in the 'Cis-Kaduna' Districts can sell his products in nearby markets the



farmer in the other districts is often not assured of markets for his products, as happened at Yebu in Kwali District of Abuja in 1968 where yams had to be burnt or left to rot away as there were no traders to purchase or means of transport to evacuate the yams. The locational advantages possessed by the 'Cis-Kaduna' Districts continue to make the area attractive to farmers, and thus make them willing to pay tribute to fiefholders rather than emigrate to districts where marketing and transportation facilities for farm crops are poorly developed. The nearness of the Districts to the Hupe cultural capitals of Bida and Agaie further strengthens the attachment of the farmers to the Districts (regardless of the payment of tribute) as compared to the culturally remote and sparsely populated Districts. We therefore see that the locational advantage possessed by the 'Cis-Kaduna' Districts is a strong factor in their continued high density of population and the consequent evolution of individual ownership of farmland.

#### ORGANISATION OF AGRICULTURAL LAND AND RURAL ECONOMIC DEVELOPMENT

Having discussed the relationship between the population distribution and the organisation of agricultural land, it is pertinent to examine what effects these have on land-use and rural economic development. The essence of any socio-economic organisation of agricultural land lies in its contribution to the social satisfaction of the farming population. The possibility of modifying the existing system to accommodate the essential changes required for commercialised agriculture and increased production are also crucial to rural economic development.



### Security of Land Title

We have seen that under the communal land tenure system, the farmer's legal right to the land is the right of user, and that in theory all land belong to the community; the farmer's usufructuary right nevertheless confers security of tenure both for himself and his heirs. The recognition of individual family ownership of land is gradually evolving, however, and there is sufficient security of tenure to encourage the farmer to make long-term investments and improvements in the land provided he has the motivation and the means to embark on the improvement. Examples are found of improvement and investment particularly on fadama farms such as drainage works and building of irrigation channels. In the densely populated Districts, however, even though individual family ownership of land is the case, most of the actual farmers are 'tenants' and have no right of occupancy on their farmlands. Eviction of farmers from what can be regarded as their 'ancestral lands' as we noted earlier is not uncommon. At Jima/Doko and Katcha Districts over half of the respondent farmers' farmland were on lease or loan terms, which means that they have no titles whatsoever to that portion of their farmland. The farmer is only sure of crops planted in the current year and as has been observed elsewhere (Luning, H. A. 1963: 82) this situation often leads to lack of investment essential to improvement in agricultural land. The scale of operation of the farmer is also restricted as vacant lands which otherwise could have been brought under cultivation remain unused owing to the complicated tenure system. In spite of this situation, however, farmers



endeavour to make what improvements they can on their farmlands, while some fiefholders encourage their tenants to use fertilizers (though at a price) on their fadama farms.

Even though farmers in the sparsely populated Districts as well as some farmers in the densely populated Districts enjoy enough security of tenure to allow them to invest on the land and make long-term improvements, the lack of registered title makes it impossible for the farmer to mortgage his land in raising capital for long-term improvement of his farmland. Possibilities of both small scale and large scale irrigation projects exist all over the study area particularly along the flood plains of rivers Niger, Kaduna, Gbako and other smaller rivers, and these await capital to complement the existing irrigation culture for their development. The farmer is usually unable to provide capital which is essential to the introduction of new techniques, and his lack of sufficient savings and limited possibility of raising credit would seriously affect agricultural development.

#### Mobility of Farmers

It has been suggested that immobility of farmers due in part to the customary rules forbidding alienation of land to strangers may have placed an obstacle to an efficient use of land, causing low productivity as well as contributing to the uneven distribution of population in Nigeria (Adegboye, R. O. 1967: 346). Observations on the field do not seem to confirm these views entirely though they are valid in certain respects. We have noted earlier in the chapter that immigrant farmers from other



parts of Northern Nigeria are attracted to the sparsely populated Gwari and Kamuku tribal Districts. This immigration has resulted in increase in rural population and rural land use as in Bwari and Kwangoma Districts. With regard to the 'Cis-Kaduna' Districts, farmers with insufficient land were reluctant to emigrate as a result of the locational advantage possessed by the Districts. As noted earlier, marketing of farm products and transportation facilities are well developed while the area continues to be the centre of Nupe cultural life.

Viewed from the Nigerian national point of view, the seemingly open door policy of attracting immigrants to the sparsely populated Districts is limited in its application. Immigrants whose permanent homes are in other parts of Northern Nigeria and whose mode of life and cultural background are similar to those of the receiving communities are readily settled. Immigrants from the Southern States are either not interested in farming (as they are mainly traders and artisans) or are not encouraged to take up agricultural land under the system of communal ownership of land. The defunct Niger Agricultural Project located in Nokwa District offers a good illustration of the limitation to the possibility of attracting settlers from other parts of Nigeria to aid agricultural development in the area. In connection with the selection of settlers for the defunct Project, Baldwin observed that "it was generally accepted that the local people would oppose the introduction of settlers from other areas and that any attempt to do so would only create sociological and political difficulties



which would prejudice the whole scheme" (Baldwin, K. D. S. 1957: 49). This observation is still valid in the prevailing circumstances. The procedure for qualifying by Southern Nigerians for a 'customary unwritten title' i.e. the same title as that enjoyed by a native of the Northern Provinces of Nigeria, is cumbersome and in any case, "the procedure has been compromised as no certificate of this nature (of occupancy) has ever been issued". (Cole, C. W. 1949: 54). Thus we see that from the socio-political and legal points of view, mobility of farmers into the sparsely populated Districts is limited. In this regard, Oluwasami observed that "population is not a problem in Nigeria when considered against the total surface area. It is a serious problem as social barriers prevent a rational allocation of the land resources in the country" (Oluwasami, H.A. 1966: 78).

#### Exploitation of Peasant Farmers

Adegbeye's observation (1967: 346) that sub-leasing arrangements give room to exploitation of the tenant cultivator is quite relevant to the existing condition in the 'Cis-Kaduna' Districts. Of the 63 farmers interviewed at Jima/Doko and Katcha Districts, 37 or 58.7% are tribute-paying farmers who pay tribute on over 60% of the total acreage of their farmlands. The tribute variously termed dzanka (tithe), Enyakin or Albarka Kasa ('blessing' that lay on the land), Zakat or Kyuta (gift) was the former annual village tax paid by every family to the chief or fief-holder in recognition of the protection afforded the community. In other parts of Northern Nigeria, annual income tax (Hara'i) has been substituted



for dzanka (Sultan of Sokoto: 1944 Memo: 37303:24), but in Nupeland the Fulani rulers perpetuate its payment on fiefholds in addition to the annual income tax, and in effect, negates the occupancy rights of the peasant farmer and subjects him to double taxation. This is contrary to the provision and intention of the Lands and Native Rights Proclamation (1910). The suggestion (based on Islamic religion) by the Bida Local Authority that the payment of dzanka was voluntary offerings by the peasantry who liked paying them was not supported by the facts as Table 20 indicated that 88.4% of tribute-paying farmers were against its payment.

There were no standardized tribute rates demanded by fiefholders, (though the rate was generally assumed to be one-tenth of produce) as the rate depended on the personal relationship between the fiefholder and the tenant-farmer. There is now a tendency to uniform rate of tribute payable both in cash and in kind. For the lease of an acre of fadama, the fiefholder charges £2 : 10/- in cash before cultivation and 2 kondos - 168 lbs. of grain after harvest. For upland farm, the tributes are £1 : 10/- and 1½ kondos (126 lbs. of grain) per acre. Apart from the cash payment, the tribute in kind amounts to 11.6% and 10.9% of yield per acre respectively. For seasonal tenantry whereby the fiefholder provides the seedling and the tenant provides the labour, the fiefholder's share is half of the yields. For upland farms loaned for guinea corn production, the fiefholder receives one bundle of grains (60 lbs.) which is 9.2% of the estimated yield per acre (650 lbs.). In addition to the tribute payment, the tenant farmer is responsible for the storage of the grains till when the grains can fetch high prices and in many cases he is



responsible for carrying the grains to the fiefholder.

Thus we see that, contrary to Rowling's observation in Kano Province that land is valueless to the man who does not work it (Rowling 1948, para. 170), the absentee fiefholder in Nupeland lives on the proceeds of his farmland leased to tenant farmers. The realisation that land can produce an income, apart from its user, provided 'ownership' can be established in addition to the relatively high population density, has led to the exploitation of peasant farmers and the tendency to extend claims of inheritance to vacant lands. The peasant farmer is thus denied his usufructuary right and the means as well as the incentives to invest on his farmlands. It should be noted however that the exploitation of the peasant farmer through tribute payment does not exist in the sparsely populated Districts.

#### Land-Use

The system of communal ownership of land in the sparsely populated Districts allows extensive use of land in agriculture, and farmlands are often abandoned after two or three consecutive croppings only. The use of fertilizers is not common as only 16.2% of farmers interviewed in the Districts use fertilizer mainly for their fadana rice farms. Farmlands surrounding the farmers' hut (Compound land -- (bayan gida)) which are continuously cultivated are however manured with household refuse and animal droppings. In the densely populated Districts where individual family ownership of land is the rule, farmlands are more intensively cultivated and with the aid of fertilizer, yields per acre are higher than where extensive cultivation is the rule. In addition, emphasis is on high income-yielding crops such as



rice, onion, pepper and other vegetables. Many upland farms are cultivated continuously for up to five years while compound lands (hayan gida) as well as fadamas are continuously cultivated. At Edozhigi, Badeggi and Edogi villages, many fadama plots are made to produce two crops of rice annually through irrigation and the use of fertilizers. All the farmers interviewed in the 'Cis-Kaduna' Districts use fertilizers on their fadama farms, while 62.8% use fertilizer on upland farms. The contrast in land use will be further discussed in chapter six but here we may note that the existing population density and land tenure system encourage a greater intensive use of land in the densely populated Districts.

In this Chapter we set out to examine the characteristics and trends in the land tenure systems and their relation to the population distribution in the study area as well as their bearing on land use and rural economic development. The discussion of land tenure was limited to agricultural land with factors affecting its allocation and control as well as the effects of the tenure system on agricultural development.

Certain factors such as high rural population densities, the socio-political system, the increasing commercialisation of agriculture and the immigration of farmers into the study area are responsible for the evolution of individual family ownership of farmlands. The lack of security of tenure and registered title to the land is seen as constituting problems for agricultural development. From the Nigerian national planning point of view, however, the limitations imposed by the existing tenure system on the possibilities of settling farmers from other parts of Nigeria is seen as a



ISSUES OF LAND USE AND AGRICULTURAL PRODUCTION

major problem in the development of the agricultural resources of the area. The present position in the study area is that there are large expanses of land awaiting development which the existing population is not capable of fully utilizing given the present techniques of farming. This is seen as providing opportunities for the settlement and development of the Middle Belt so that there is the need for finding ways and means of modifying the present land tenure system so as to allow increased agricultural land-use and guarantee free movement and settlement of farmers with security of tenure.

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The importance of the Middle Belt as a food producing area, supplementing present crop production in other parts of Nigeria has not been fully realized and has not attracted any worthwhile study. As we noted in the report on the Middle Belt as a food surplus area which had shown evidence of large quantities and exported to the Sudan and former parts of Nigeria (Chadwick, K. H. and Page, J. C. (1955: 115), Odeh, S. A. (1957) and Adesoye, S. A. (1962: 79). There is therefore a case in which the economy of the Middle Belt can be looked upon as complementary to those of the Sudan and Forest Reserves of the Belt has increasingly produced food for the existing population of the export crop producing areas as well as for the growing urban

CHAPTER SIXPATTERNS OF LAND USE AND AGRICULTURAL PRODUCTION

In Chapter 1 we have noted that the Middle Belt of Nigeria stands out in contrast to the Forest and Sudan Zones of the country in that export crop production is of little significance in its economy. The comparatively lack of export crops regarded as the "engine of growth" in the Nigerian economy (Lewis, W.A. 1967: 6), has been one of the reasons why the Middle Belt has been regarded as a "negative zone". (Gleave, M.B. and White, H.P. 1969: 139). There has therefore been a tendency to associate the Middle Belt with a stagnant economy and economic underdevelopment as the importance of an area in Nigeria has, to date, been judged by its ability to produce export crops.

The importance of the Middle Belt as a food producing area, complementing export crop production in other parts of Nigeria has not been fully realised and has not attracted any worth-while study. As we noted in Chapter one the Middle Belt is a food surplus area where food crops are produced in large quantities and exported to the Sudan and Forest Zones of Nigeria (Buchanan, K. M. and Pugh, J. C. (1955: 116), Baldwin, K. D. S. (1957) and Agboola, S. A. (1962: 79). There is therefore a sense in which the economy of the Middle Belt can be looked upon as complementary to those of the Sudan and Forest Zones, as the Belt has increasingly produced food for the rising population of the export crop producing areas as well as for the growing urban



population of Nigeria.

Even though Lewis claimed that the stagnant sector of the Nigerian economy is the food producing sector (Lewis, W. A. 1967: 19), it is our view that this claim is not valid with regard to our study area as we shall show in the present chapter, the Middle Belt farmer has been expanding his agricultural production in response to the increasing demand for food crops from other parts of Nigeria, so that the agricultural production and income of the Middle Belt farmer today compare favourably with those of his counterpart in the Sudan and Forest Zones. We do not, however, wish to underestimate the problems of human resources, location and marketing which confront the Middle Belt farmer in his efforts to expand his scale of agricultural production.

In this chapter we turn to the rural economic activities in the study area with special reference to agriculture, focusing attention on land use and agricultural production in different parts of the study area. While the general trend in agricultural production in the Middle Belt is illustrated, we shall try to bring out the contrasts in factors of production among different ethnic groups and population densities in different parts of the study area. In addition, an estimate of the carrying capacity of the land in the light of existing system of land-use would be made.

In discussing land use and agricultural production, the study area has been divided into three contrasting agricultural zones based on types of crops grown and agricultural commercialisation. The



three agricultural zones are: (i) Mokwa/Pandogari farming zone; (ii) Diko/Paiko farming zone; and (iii) Jima/Doko/Katcha farming zone. In discussing agricultural production in the different farming zones the following contrasting aspects of agricultural production were specially noted during the field survey: (i) Land use; (ii) Number and type of farms and farm acreages; (iii) Crops grown, yields and agricultural production for the market and farmers' income; and (iv) recent changes in agricultural production.

#### Land Use

Six land use types are differentiated on maps (Fig. 14 to 16) drawn covering an area of about two miles radius centred on three of the six case study settlements. Mapping was accomplished by traversing and locating each farm within two miles radius of each settlement. There was the disadvantage of lack of recent air photographs of the study area as the latest air photographs available were flown in February 1962 on scale 1:40,000. The air photographs were however used to fix landmarks such as rivers, roads and settlements. New roads and settlements as well as cultivated fields not shown on the air photographs were inserted on the land-use maps by means of field survey and traversing. The land-use maps were therefore based mainly on field work, and the limited area covered ensured a representative picture of land use pattern around settlements.

In discussing land use types in Northern Nigeria, there is a fundamental distinction to be made between upland and lowland fadama



# LAND-USE AT PANDOGARI











- |  |  |   |
|--|--|---|
|  Cultivated Upland        |  Bush and other Uncultivated land |  Bush paths |
|  Cultivated <u>Fadama</u> |  Settlements                      |  Rivers     |
|  Bush fallow              |  Roads                            |   |



Fig 14



categories (Mortimore, M. J. and Wilson, J. 1965: 20). Upland normally consists of light, sandy, well drained soils, while fadama is characterized by heavier soils which are often inadequately drained and are flooded during the wet season. Fadama is usually found in valley bottoms and river flood plains and cover extensive areas in the valleys of rivers Niger, Kaduna, Gbako, Yaba, Gurara and their tributaries particularly in Jima/Doko and Katcha Districts. Distinction has also been made between cultivated land and fallow land i.e. those fields formerly cultivated which have reverted to bush. Table 21 gives the estimated percentage of types of land use in the six case study Districts.

**Table 21: ESTIMATED PERCENTAGES OF TYPES OF LAND USE**

Land Use Type	Mokwa District	Kwangoma (Pahdogari) District	Bwari (Diko) District	Paiko District	Jima/Doko District	Katcha District
Cultivated upland	6.0	7.0	12.0	10.0	32.0	30.0
Cultivated fadama	1.5	1.0	1.0	1.5	18.0	20.0
Bush Fallow	15.0	13.0	27.0	28.0	26.0	28.0
Bush and other uncultivated land	75.0	76.5	56.5	57.5	16.5	13.5
Settlements	1.0	1.0	2.0	1.5	4.0	4.5
Roads and bush paths	1.0	1.0	1.0	1.0	1.5	1.5
Rivers	0.5	0.5	0.5	0.5	2.0	2.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Observations during field survey.



# LAND-USE AT PAIKO

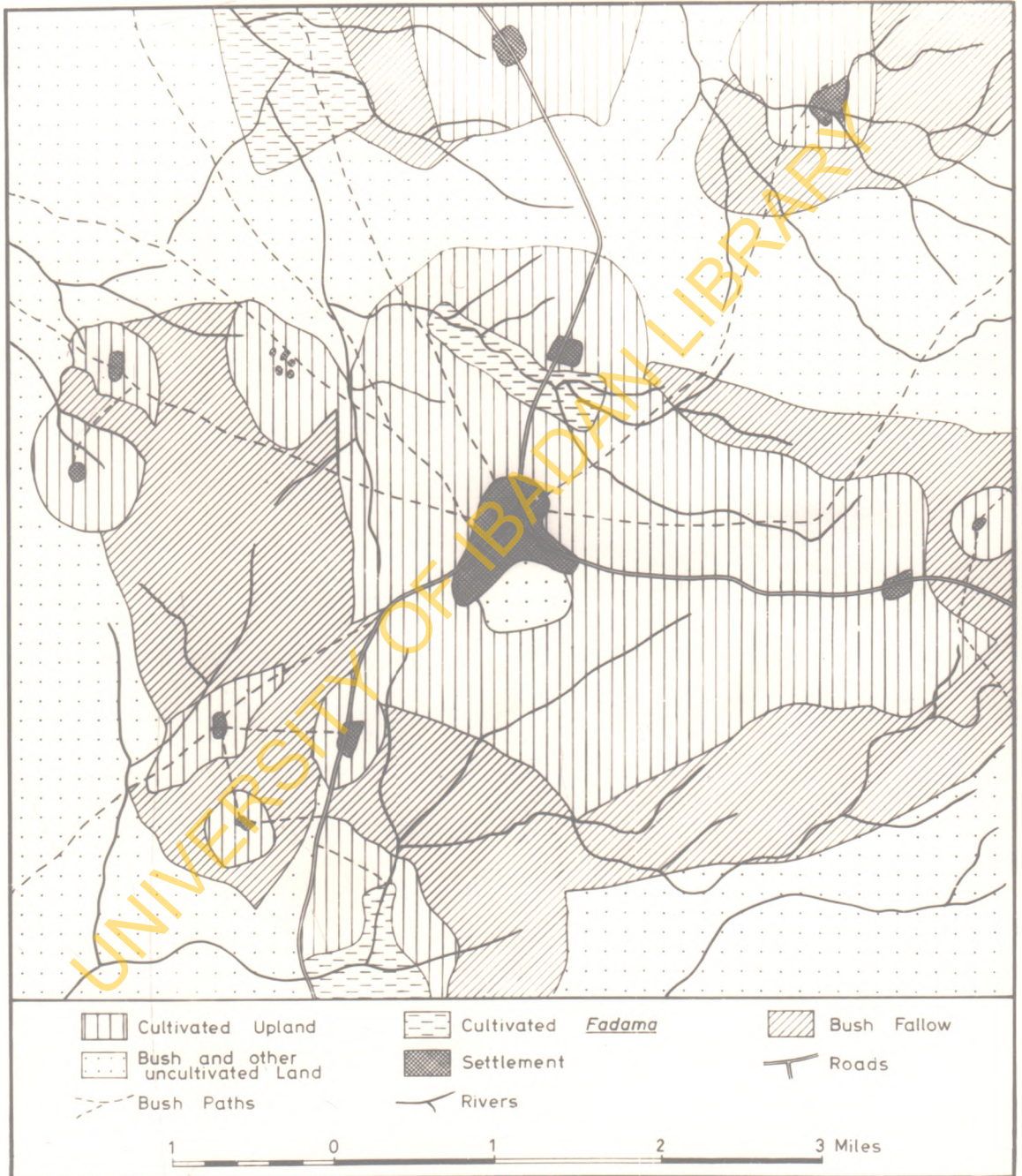


Fig 15.



### Cultivated Upland

Upland cultivation is by far the most important type of land use particularly in areas far away from the main river valleys as in four of the case study Districts of Modwa, Pandogari, Bwari and Kwangoma. Here it forms the basis of the agricultural economy, and even in the riverine Districts of Jima/Doko and Katcha it takes priority over fadama in the wet season and represents 65.8% and 64.8% of farmers' farm acreage respectively. The cultivated uplands around and near the settlements (gona Karakara) are intensively and continuously cultivated, though farther away from the settlements cultivation becomes less intensive. In Jima/Doko and Katcha Districts, where population densities are high, agricultural production is of the intensive type. There the upland farms are manured with both household refuse and fertilisers and a 4-year course rotation system has been developed (Table 24 below). The upland fields have been divided up into rectangular farms bounded by strips of gamba grass (Andropogon gayanus) which indicates farm boundaries and prevent wind and soil erosion.

In the sparsely populated Districts of Mokwa and Pandogari, and to a lesser extent at Diko and Paiko Districts, the uplands are not as intensively cultivated as at Jima/Doko and Katcha Districts since rotational 'bush fallowing' whereby a plot of land is left in fallow for four to six years before being cultivated is still the usual practice. There is, however, a noticeable change into continuous cultivation of the gona karakara even in the sparsely popu-



# LAND-USE AT KATCHA

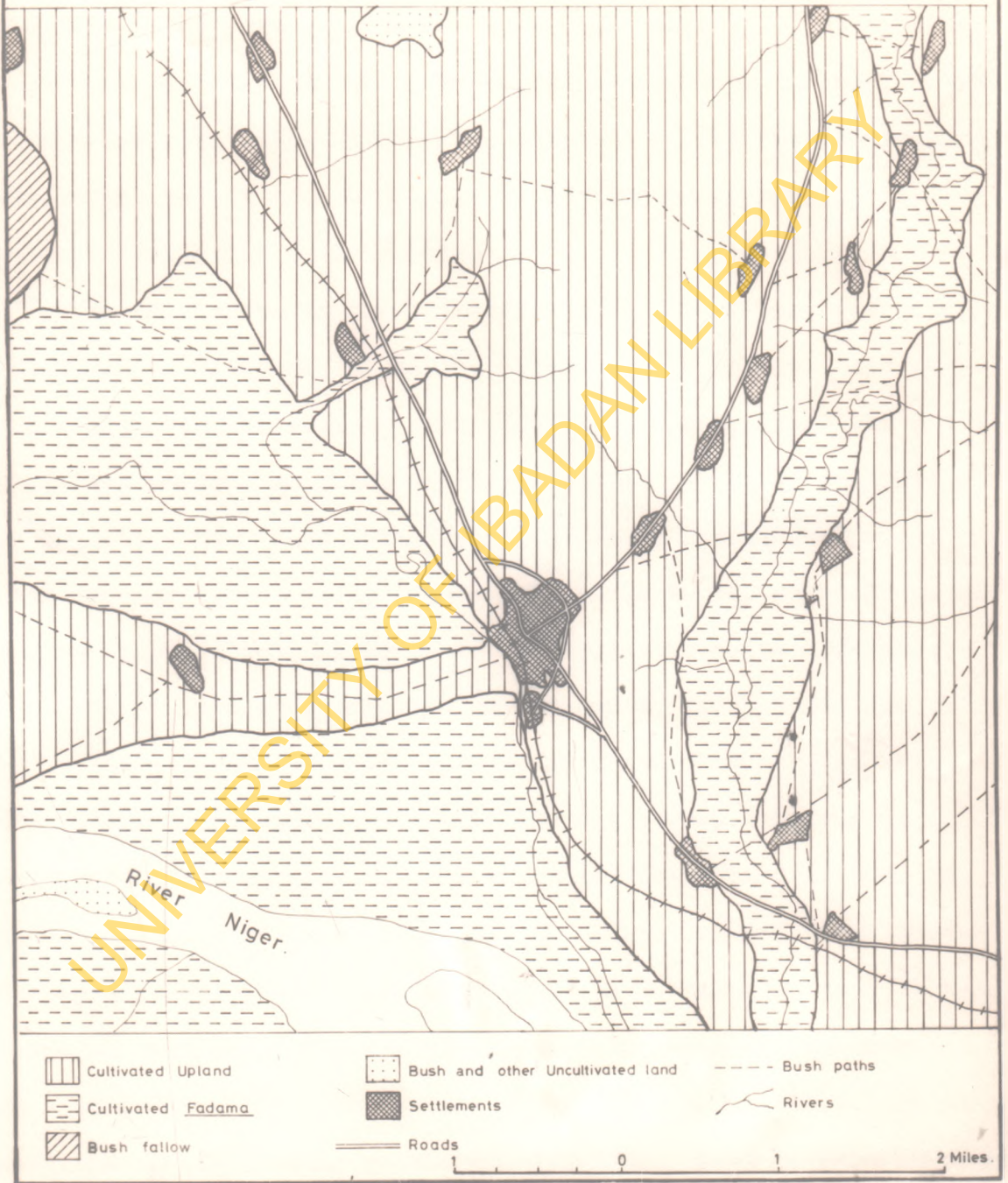


Fig 16

lated districts as these are preferred to distant farms (gona daji) even though a distinct rotational pattern has not emerged. It is remarkable that irrespective of the general density of population, continuous cultivation is the preferred system with farmers. This gives support to Polly Hill's view that preference for continuous cultivation is not necessarily an indication of Malthusian land pressure (Polly Hill, 1968: 241).

The main crops on the cultivated uplands are yam, guinea corn, millet, maize, cowpeas, calabash, cotton and groundnut. The crop combinations in the densely populated Districts of Jima/Doko and Katcha are however slightly different as yam is nearly completely absent, its place being taken by upland rice, cassava and red pepper which are not grown on any appreciable scale in the sparsely populated areas particularly in the Gwari Districts of Paiko and Diko.

Fulani cattle rearers are encouraged to graze their cattle on the cultivated uplands after harvest in the dry season, as this often leads to improved soil fertility and higher crop yields in the subsequent cropping season. The Nupe landowners in Jima/Doko and Katcha Districts usually invite nomadic Fulani herdsmen and induce them by gifts of food or assistance in the building of camp to kraal cattle on cultivated uplands after harvest. This is one of the means of maintaining soil fertility and continuous cultivation prevalent in the densely populated Districts. Many farmers at Katcha, Jima, Badeggi, Toroko and Edozhigi now undertake limited irrigation of cultivated uplands in growing vegetables, particularly onion, red



pepper and tomato during the dry season.

### Cultivated Fadama

In contrast to cultivated upland which supports crops mainly in the dry season, cultivated fadama support crops throughout the year as the water table is quite near the surface. Cultivated fadama forms 34.2% and 35.2% of total farm acreage in Jima/Doko and Katcha respectively, while in the other farming zones it forms about 2%, though in Mokwa District it forms 6.2% of total farm acreage. The greater proportion of fadama farms in 'Cis-Kaduna' Districts is a result of the fact that the Districts lie mainly in the Niger flood plain and the lower part of the Nupe plains noted as suitable for irrigation agriculture in Chapter one. The 100,000 acres estimated by the World Bank to be suitable for rice production east of River Kaduna (I.B.R.D. 1954: 158) are mainly fadama found in the 'Cis-Kaduna' Districts. In the other Districts fadama is less widespread and most of the farm-lands are upland farms, while the lower intensity of fadama usage reflects lack of interest in rice cultivation and the difficulty and cost of marketing dry season vegetables in Mokwa/Pandogari and Diko/Paiko farming zones which are far from large centres of population and well-organized marketing. Rice is the main crop on the fadama, while onion, vegetables, sugar cane and cassava are also grown.

The fadama through annual flooding and irrigation supports intensive cultivation of crops as in Edozhigi village where two crops of rice are grown on the fadama every year through irrigation. Crop yields are in most cases over two or three times higher than on cul-



tivated uplands. For example, while 850 lbs. and 950 lbs. of rice paddy per acre are obtained from upland rice farms at Pandogari and Paiko respectively, 2,100 lbs. and 2,150 lbs. of rice paddy per acre are obtained from fadama farms at Doko and Katcha respectively. The high crop yields obtained from fadama make it highly prized by farmers and many landowners in 'Cis-Kaduna' Districts often demand high tribute payments before letting out their fadama. Mortimore and Wilson (1965: 23) noted that in the Kano Close-Settled Zone fadama is worth four times the value of upland farmlands.

One major difference in the working of the fadama between the densely populated Nupe Districts and those of other parts of the study area is that while the indigenous Nupe farms the fadama, the fadama in the other District as at Pandogari, Paiko and Diko are farmed mainly by immigrant Hausa from Zaria and Kano who grow onion and sugar cane and very little rice as was formerly the case in north-east Zaria (Grove, A. T. 1961: 125). Furthermore, the Nupe constantly strive to increase the fadama acreage under cultivation by draining the river flood plains, building irrigation channels, dams, and by using shaduffs to bring water to the uplands in the dry season. The Nupe skill at irrigation agriculture on the fadama and outlying lands has been commented on by Lines, C. W. (1943), Rae, C. J. (1944) and Agbeola, S. A. (1962). The Nupe in the 'Cis-Kaduna' Districts have for a long time been 'irrigation conscious' and have built themselves dozens of little dams by means of which the flow of streams and rivers is diverted into the fields. This is in strong contrast to the



Gwari and Kamuku tribes in other parts of the study area, where little or no irrigation and fadama farming take place. Population pressure on the land and the fact that uncultivated upland is not as extensive as in other parts of the study area might have been responsible for the development of fadama and irrigation farming in the 'Cis-Kaduna' Districts of Nupeland. The absence of intensive agriculture, based on irrigation farming in the sparsely populated Nupe Districts of Mokwa, Kintako and Lapai tend to support the fact that irrigation culture is not a tribal heritage among the Nupe but a response to the need to provide for the population concentration found in Cis-Kaduna Districts. Examples abound in other parts of Nigeria where there is broad correlation between population density and intensity of agriculture (Grove, A. T. 1961: 115 and Mortimore and Wilson, 1965).

#### Bush Fallow

The extent of bush fallow in the study area varies in accordance with population density and with the average size of upland farms. In the Mokwa/Pandogari and Diko/Paiko farming zones, the proportion of bush fallow varies between two and two and a half times that of cultivated upland, while in the Jima/Doko/Katcha farming zone the proportion of bush fallow in the total land use type is actually less than that of cultivated upland (26 to 32% and 28 to 30% respectively, Table 21). This difference in proportion is due to the higher density of population and the continuous culti-



vation practised in the Jima/Doko/Katcha farming zone, while the former two farming zones require a larger bush fallow in the present extensive farming system of rotational bush fallow practised. Bush fallow land is however still required to supplement continuously cultivated land in Jima/Doko/Katcha farming zone, though much of the bush fallow is due to lack of use as a result of disagreement between landowners and tenants. As noted in Chapter five, bush fallow land reverts to the community after three years in the Mokwa/Pandogari and Diko/Paiko farming zones where communal ownership of land is the rule, while in the Jima/Doko/Katcha farming zone, bush fallow land is in fixed hands and the landowners have perpetual right to the sylvian produce derivable from it. The bush fallow is usually let out and proceeds from economic trees such as locust bean, palm tree and sheanut are shared between the tenant and the landowners. Cassava regrowths on previously harvested bush fallow land in Jima/Doko/Katcha farming zone are usually re-harvested three years later or shortly before the fallow land is brought under cultivation - further showing the intensive nature of agricultural land-use in this farming zone.

#### Bush and Other Uncultivated Land

This category of land use type covers extensive areas in the Mokwa/Pandogari farming zone where over 75% of the total land surface is bush and uncultivated land. The proportion is 56.5% and 75.5% in Bwari and Paiko respectively while the least proportion is found in the Jima/Doko/Katcha farming zone where only 16.5% and 13.5% of total land surface in Jima/Doko and Katcha Districts respectively are in



the cultivation of millet, maize, guinea corn, sorghum and yam in this category. In this category are classified bush, wasteland, table is fairly intensive and the work is left to the old men, rock outcrops, perpetually water-logged land near floodplains and cultivation within the densely populated Nupe villages, and forest reserves. The British Colonial policy of constituting areas of sparse population into forest reserves is clearly brought out here. For example, forest reserves cover 1,137 square miles or 7.3% of the study area and most of the reserves are in the sparsely populated Districts. For example, forest reserves cover 207.2 square miles (13.4% of total land area) in Mokwa District, 119 square miles (14.1% of total land area) in Alawa District while in the densely populated Districts of Jima/Doko and Katcha, forest reserves cover only 5.8 square miles and 2.3 square miles which are 2.0% and 1.0% respectively of the total land surface.

The bush and other uncultivated land are sources of silvan produce such as firewood, shea nuts, locust bean, timber and a variety of fruits. They also provide sources of game and honey particularly in the dry season. The ubiquitous village sheep and goats as well as Fulani cattle graze in the bush, though cattle grazing is limited in the Mokwa/Pandogari farming zone due to tsetse infection as population density there has not reached the minimum of 70 to the square mile required to cope with the clearing of bush to reduce the breeding of tsetse flies (Nash, T. A. M. 1948).

#### Settlements

In this land use type is included land within and between compounds which are often used as garden plots. In the villages, where large open spaces separate the different wards, (Nupe: efu)



the cultivation of millet, maize, guinea corn, tobacco and vegetable is fairly intensive and the work is left to the old men. Cultivation within the densely populated Nupe villages, and even in Bida and Agaie towns, is particularly striking so that in the Jima/Doko/Katcha farming zone something is planted in any available space within the compound and the village. Garden plots within and around compounds in the Kamuku and Gwari areas are few, as the houses and compounds are close together with little spaces between them.

#### Roads and Bush Paths

These are more numerous in the Jima/Doko/Katcha farming zone than in the other farming zones though the Jebba/Kaduna road which passes through the Mokwa/Pandogari farming zone tends to give the zone a measure of marketing advantage. The Diko/Paiko farming zone is served mainly by seasonal motor roads and bush paths. In addition to motor roads and bush paths, the Jima/Doko/Katcha farming zone is served by rail (Minna-Baro line) and by waterways on Rivers Kaduna and Niger. The rail, road and water routes are of tremendous advantage in farm produce evacuation and marketing.

#### Rivers

These are river beds which occupy less than 1% of the total area of Mokwa/Pandogari and Diko/Paiko farming zones and slightly over 2% of the area of Jima/Doko/Katcha farming zone. As the Jima/Doko/Katcha farming zone lies mainly in the Niger flood plain and in the lower sections of the Nupe plains most of the rivers do not dry



up in the dry season and such rivers as Niger, Kaduna, Ejiko, Kupanko, Gbako and Yaba provide irrigation water, river routes (Niger and Kaduna) and fishing grounds. The rivers further add to non-farm income of farmers in the Jima/Doko/Katcha farming zone as many of the farmers become part-time fishermen during the dry season. The flood control of River Niger following the completion of the Kainji Lake has however reduced the area of fadama annually flooded and the amount of fish catch by fishermen in Katcha District (Adeniyi, E. O. 1970).

#### Land Use and Carrying Capacity of the Land

From the discussion of the land use types it can be seen that land use in the different agricultural zones has been influenced by the size of the population, by conscious efforts to develop intensive cultivation and increase fadama acreages through localised small scale irrigation as well as by the preference of the farmers for nearby upland farms leading to continuous cultivation. The influence of the size of the population is particularly remarkable as shown by the extent of cultivation in the Jima/Doko/Katcha farming zone, where cultivated fields stretch in an unbroken band and land under one type of agricultural use or another accounts for over 75% of total land area. In contrast to this, the sparsely populated Mokwa/Pandogari and Diko/Paiko farming zones have between 21.5% and 40% of their total land area under the same type of agricultural use. The extensive type of cultivation in the latter zones has led to rotational bush fallowing so that bush fallow is about two and a half



times the cultivated farms. In the densely populated farming zone, on the other hand, bush fallow is actually less in area than the cultivated farms and but for the complicated land tenure system, the percentage of bush fallow in the area could have been less than the present 28%.

It is therefore clear that the size of the population and its growth as well as increasing commercialisation of agriculture in the Jima/Doko/Katcha farming zone, has necessitated the adoption of a system of agriculture which is remarkable for its intensity in this sparsely populated zone of Nigeria. This is in confirmation of the contention by Boserup that population growth is, in many peasant communities, a pre-condition of agricultural change and rural economic development (Boserup, E. 1965).

The preference for continuous cultivation of farms near the village noticed among farmers in Batagarawa by Polly Hill (1968: 242) is also manifest in the study area, as the farmlands near the settlements (gona karakara) are continuously cultivated and over three-fifth of the farms are within three miles of the villages. This continuous cultivation around the villages irrespective of population densities is responsible for the apparent uniform land use type shown in Maps 14 to 16. It is also in conformity with Michael Chisholm's (1942: 148) observation that over much of the world, there is a tendency "to modify the patterns of rural settlement and land-holding in such a manner that the distance separating the farmstead from the lands cultivated is reduced ...." There is also a



tendency to increased intensity of land use as a result of increasing population and expansion of farming activities, while increase in irrigation agriculture particularly in the Jima/Doko/Katcha and Diko/Paiko farming zones (mainly by immigrant Hausa in the latter) has led to increase in the area brought under continuous cultivation. With the clearing of bush for agricultural purposes, there is a decrease in the incidence of animal trypanosomiasis, and cattle grazing is steadily increasing particularly in the dry season. As in other parts of the Middle Belt the present system of land-use is capable of supporting a considerably larger total population.

In order to justify this claim an attempt is made to estimate the size of population that could be supported by the present system of land-use. In this respect, the concept of Critical Population Density (CPD) has been used. Allan (1965: 89) has defined CPD as "the human carrying capacity of an area in relation to a given land-use system, expressed in terms of population per square mile; it is the maximum population density which a system is capable of supporting permanently in that environment without damage to the land". In applying the CPD concept to the study area, we regard it as the size of population that would lead to a maximum utilisation of the resources and a maximum output per unit area given the present land-use system without any fear of soil deterioration. There are a number of problems to be faced in calculating the CPD.

In the first place, a suitable classification of the land with regard to the quality of the soils could not be made in view of the



limited knowledge of the quality of the soil.

Secondly, an accurate estimation of the proportion of land which is suitable for cultivation under the prevailing system of land-use could not be made and the arbitrary figure of 85% arrived at is based on field observation.

It has therefore not been possible to calculate the CPD based on different types of soil quality so that the CPD given is based on the estimated total land suitable for cultivation in the study area. It is however hoped that the present land use system of three consecutive cultivations followed by five to six years of fallow gives a fair approximation of the quality of the soil.

The calculation of the CPD was based on the following factors:

Total Land Area = 15,812 square miles = 10,119,680 acres.

Cultivable Land - this is land that would normally be included in the cropping sequence. Based on field observation, it is assumed that 10% of total land area is uncultivable and that non-agricultural land-use such as settlements, rivers, roads etc, amounted to 5%. The cultivable land is then estimated to be 85% of the total land area; 85% of 10,119,680 acres = 8,601,728 acres.

Land-use Factor - this is the duration of cultivation on the land and the period of subsequent rest (fallow) required for the restoration of fertility. Taking the current practice of three years of consecutive cultivation and six years of fallow, the land-use factor is three, which means that in any one year  $\frac{1}{3}$  of cultivable area would be cultivated under the present



land-use system.

$$\begin{aligned} \text{Area cultivable per year} &= \frac{\text{Cultivable area}}{\text{Land-use factor}} = \frac{8,601,728}{3} \text{ acres} \\ &= 2,867,242.6 \text{ acres.} \end{aligned}$$

Acreage cultivated per head of population

$$\frac{\text{Average acreage per farming unit}}{\text{Average size of farming unit}} = \frac{9.3}{9.1} = 1.02 \text{ acres}$$

Carrying capacity of the land

$$\begin{aligned} \frac{\text{Acreage cultivable per year}}{\text{Acreage cultivated per head}} &= \frac{2,867,242.6}{1.02} \\ \text{of population} &= 2,811,022 \text{ persons} \end{aligned}$$

$$\text{CPD} = \frac{\text{Carrying capacity of the land}}{\text{Area in Square miles}} = \frac{2,811,022}{15,812}$$

$$= 177.8 \text{ persons per square mile.}$$

Following the calculation, it is estimated that the study area could, under present system of land-use, support a total of 2,811,022 persons giving a density of 177.8 persons per square mile. This is in contrast to the existing population of 464,458 and a density of 29.4 persons per square mile.

The limitations of the CPD figure arrived at are realised as for instance, the soil fertility, the intensity of land-use, and the technology of land-use have been assumed to be uniform throughout the study area. This is not the case in reality as has been shown by the discussion of contrasting intensity of land-use in different parts of the study area and the greater fertility of fadama as compared with upland farms. In addition, the dynamic nature of the



technologies of production and population movements further limit the reality of the CPD. Nevertheless, it is felt that in calculating the CPD as many as possible of the variable factors that govern agricultural land-use in the study area have been considered while the figure gives an indication of the carrying capacity of the land given the existing system of land-use. It also helps to illustrate the contrast between the existing population size and the theoretically possible size of the population. The calculation of the CPD has therefore shown that this part of the Middle Belt can support a larger size of population under existing methods of production without any deterioration in soil fertility.

#### NUMBER AND ACREAGE OF FARM HOLDINGS AND CROP PRODUCTION

In giving the number of farms, a farm is defined as a contiguous piece of land farmed by one farming unit and on this basis, Table 22 shows the number of farms cultivated by different number and percentage of farming units in the six case study Districts. It can be seen that over 50% of the farming units in the Mokwa/Pandogari and Diko/Paiko farming zones have only two farms while the corresponding percentage is less than 18% in the Jima/Doko/Katcha farming zone. It appears there is a tendency for cultivating a higher number of farms in the most densely populated zone where the higher population density and the land tenure system has been responsible for fragmentation of farm holdings. The greater number and acreage of fadama farms in the Jima/Doko/Katcha farming zone has also been responsible for a higher number of farms. In the case of Mokwa/



Pandogari farming zone, the population density is low and there is sufficient farmland for individual farmers to have large contiguous farm holdings. In addition the communal system of land tenure and the fact that farm holdings consist mainly of uplands enable farmers to have contiguous farms.

Table 22

## NUMBER OF FARMING UNITS WITH DIFFERENT NUMBER OF FARMS

District	Farmers with 1 farm		Farmers with 2 farms		Farmers with 3 farms		Farmers with 4 farms		Farmers with Over 4 farms	
	No.	%	No.	%	No.	%	No.	%	No.	%
Mokwa	5	13.9	20	55.6	8	22.2	3	8.3	-	-
Pandogari	4	11.4	23	65.7	6	17.2	2	5.7	-	-
Diko	5	13.9	13	36.1	14	38.9	3	8.3	1	2.8
Paiko	3	8.6	21	60.0	7	20.0	2	5.7	2	5.7
Jima/Doko	-	-	6	17.2	9	25.7	13	37.1	7	20.0
Katcha	-	-	4	10.5	10	26.3	15	39.5	9	23.7
Total	17	2.9	87	40.5	54	25.1	38	17.7	19	8.8

Source: Field Survey.

Table 23 shows that the average number of acres farmed in each farming unit was 9.3 acres. The average farm acreages are however higher in the Mokwa/Pandogari and Diko/Paiko farming zones (ranging between 9.7 and 11 acres, while corresponding acreages in the Jima/Doko/Katcha farming zone are lower (less than 8 acres). These



figures show larger farms than in Zaria where Norman (1967: 13) gave a figure of 9.59 acres and also in the Kano-Close-Settled zone where Mortimore and Wilson (1965: 13) gave a figure of 4.35 acres. The figures are also higher than those produced by the Federal Office of Statistics which gave the average size of farm holding in 1957-58 in Niger Province as 5.8 acres. The large farm acreages recorded may be due to the fact that farming is still on a more extensive scale as a result of greater availability of farmland in the Middle Belt than in the Sudan zone. The problem of under-declaration of farm holdings which might have affected the Federal Office of Statistics figures was eliminated by actual measurements of both gandaye, iyalai and gayauna farms on the field. The Federal Office of Statistics field staff may not have employed this method and hence their lower acreage figures recorded.

While discussing the land use a distinction has been made between cultivated upland (gona) and cultivated lowland (fadama). It was pointed out then that the proportions of upland farms in the total acreage of farms in the Mokwa/Pandogari and Diko/Paiko farming zones are very high while the proportion of fadama farms in Jima/Doko/Katcha farming zone is relatively high (over 30%). It appears that the greater dependence on fadama farms and the greater intensity of land use already noted in the Jima/Doko/Katcha farming zone is responsible for the lower total acreage of farms as the labour-intensive and high value per acre fadama crops are substituted for the less labour-intensive and lower value-per-acre upland crops.



Table 23AVERAGE SIZE OF FARMS (IN ACRES)

District	Upland	Fadama	Total	% Upland	% Fadama	Upland/Fadama Ratio
Mokwa	9.1	0.6	9.7	93.8	6.2	15.2
Pandogari	9.6	0.2	9.8	98.0	2.0	48.0
Diko	8.2	0.3	8.5	96.0	3.5	27.0
Faiko	10.8	0.2	11.0	98.2	1.8	54.0
Jima/Doko	5.2	2.7	7.9	65.8	34.2	19.3
Katcha	4.6	2.5	7.1	64.8	35.2	18.4
Total	8.2	1.1	9.3	88.2	11.8	74.5

Source: Field Survey.

The lower acreage of farms in the zone is also consistent with Norman's observation with regard to farming in Zaria that densely populated areas tend to have smaller sized holdings than those in areas where the population density is less (Norman, D. W. 1967: 12).

CROP PRODUCTION

In discussing crop production, it is pertinent to examine briefly the role of agriculture in general and food crop production in particular in the economic development of Nigeria and the factors determining crops grown in the study area.

The Role of Agriculture in the Economic Development of Nigeria



Among the roles of agriculture in the economic development of Nigeria, the following may be noted: (1) the production of food for the rising population particularly the increasing urban population of the country; (2) the main source of national income (e.g. 56.1% of the gross domestic product of Nigeria in 1967/68 was derived from agriculture) and the provision of employment opportunities for between 60 and 80% of Nigeria's labour force; (3) a major source of foreign exchange earnings which make possible the importation of machinery and other capital goods required for industrialisation and general development; (4) the production of raw materials for the development of industries; and (5) the generation of income within the domestic economy and provision of capital for the development and expansion of other sectors of the economy such as trading and transportation. These roles are regarded as the special characteristics of the agricultural sector in the process of economic development (Johnston, B. F. and Mellor, J. W., 1961: 566-593).

In order that agriculture may fulfil the roles stated above, it should be able to produce both food and export crops as well as raw materials for the development of local industries. The emphasis in agricultural development in Nigeria has been on the promotion of export crop production and this emphasis can be seen in the 1962-68 National Development Plan.<sup>1</sup> The fact that export crops have been a major source of foreign exchange and capital accumulation through

1. See for instance the 1962-68 Development Plan for Northern Region of Nigeria where most of the capital projects listed (pp.7-17) were specifically designed to further develop the export crop producing areas of the Sudan Zone. The First Progress Report on the Development Plan also refers only to the 'satisfactory development' achieved with regard to export crop production - groundnuts and seed cotton (pp.7-8) and no reference was made to food crop production.



the activities of the Marketing Boards has led to the tendency to regard the cultivation of export crops as the 'engine of growth' in the economy and also the tendency to regard areas specialising on food crop production as 'negative' zones. Investment in agricultural development continue to be concentrated in export crop producing areas while the complementarity of export and food crop production in making for balanced agricultural development is hardly appreciated. In this regard it should be noted that in an estimate of the national income of Nigeria, Prest and Stewart (1953) emphasized the value and importance of food crops produced in Nigeria which they estimated at £336.6 million and which is five times the value of export crops (£69 million) including livestock products, logs and sawn timber.

#### Export Crops Versus Food Crops

We noted earlier that the study area and the Middle Belt as a whole are major sources of food crop production in Nigeria, and that the production of export crops is unimportant compared with other zones in Nigeria. It is essential to make a distinction between 'cash' and 'food' crops. Cash crop in the Nigerian context is synonymous with export crops on which Nigeria depends for foreign exchange. Such crops are cocoa, palm products, rubber, benniseed, soyabeans, sheanuts, groundnut, cotton and ginger. The climatic and edaphic conditions of the Middle Belt are suited to the production of all the cash crops listed apart from the first three. However, a high incidence of rosette disease and insect attack prevent groundnut and cotton from being widely grown in the Middle Belt (Watson, K.A.



and Goldsworthy, P. R. 1965: 290), while the Sudan zone produces these crops on a large scale.

Food crop production in Nigeria is usually regarded as the 'subsistence' or 'stagnant' sector of Nigerian agriculture. It is our view, however, that the term 'subsistence agriculture' is a thing of the past as large proportions of food crops produced are sold for cash particularly in the Middle Belt where food crops for the farmer's 'cash crop' and monetary income received from food crop production, now closely rival monetary income derived from export crop production. The surprisingly small number of crops grown exclusively for household consumption is a striking proof that food crop production is not synonymous with subsistence agriculture. In this connection, it has been observed that 'as farm produce of all types is apt to be sold, there is no sense a 'subsistence sector'" (Polly Hill, 1968: 242). To the farmer any crop which brings adequate cash returns is as good as any other whether the crop is to be exported to other countries or taken to other parts of Nigeria for sale. Profitability and adequate returns therefore form the basis of crop production and hence farmers in the Middle Belt concentrate on the production of food crops such as rice, yam, guinea corn, millet, cowpeas, beans, onion, pepper, tomato and calabash of which the Middle Belt has a comparative advantage, thereby complementing the production of export crops in the Sudan and Forest zones of Nigeria.

It has been suggested that "the problem of increasing product-



ivity and enlarging supplies of staple foods are of critical importance to the future economic development of tropical Africa (Johnston, B. F. 1958) and that "the most certain way to promote industrialisation ... is to raise food crop production" (Lewis, W. A. 1953: 2). In addition, the need to secure a substantial increase in food crop production was particularly stressed in the reports of the International Bank Mission to Nigeria (I.B.R.D. 1954) and the Food and Agricultural Organisation of the United Nations (U.N.F.A.O. 1965). In this regard, if we accept Jacoby's definition of agricultural development as "the process of making fuller and more rational use of the agricultural resources of a country with special reference to improving the efficiency of agriculture and the level of living of the agricultural population" (Jacoby, E. H. 1953: 3), then the production of food crops in the Middle Belt is in conformity with the process of rural economic development. The production of food crops need not be associated with subsistence agriculture as export crops do not have the monopoly of acting only by itself as "engine of growth". Under present condition of rising population and urbanization in Nigeria, the production of food crops in the Middle Belt is itself an "engine of growth" in the sense that it provides food for the population in the production of export crops and industrial development in the export crop and urban areas of Nigeria as well as generate local income and stimulate trade within the Middle Belt and internal exchange in Nigeria.



The agricultural system in the three agricultural zones into which the study area is divided is based on rotational bush fallowing combined with a well worked out rotation of crops which has led to a more or less continuous cultivation in the Jima/Doko/Katcha farming zone. Table 24 gives the main crop combinations and rotation practised on upland cultivation in the different farming zones. It should be noted that the table shows the main crop combinations in the rotation prevalent in the different farming zones and not all the crops grown are shown in the table. An examination of the factors determining the choice of crops grown will be made later but in the meantime the following observations about the table are relevant.

The practice of inter-cropping is one of the most characteristic feature of the agricultural production and this is much more varied and intensive than is shown in the table. On all the farms in the different agricultural zones, crops are interplanted successively on the same plot in such a way as to make for continuous growth of crops during the short growing season in the year. On a typical farm are grown simultaneously such crops as yams, beans, maize, millet, groundnut and vegetables on the flanks and groundnut and vegetables in the furrows. In practice, nearly every available space is taken up by crops, and the spreading out of sowing and reaping periods enables the farmer to cope with the inter-cropping on his farm plot. Inter-cropping particularly constitutes the intensive feature of agricultural production in the Jima/Doko/Katcha



Table 24

MAIN CROP COMBINATIONS AND ROTATION (UPLAND CULTIVATION)

Farming Zone	1st Year	2nd Year	3rd Year	4th Year
I. Mokwa/ Pandogari	Yam, Maize, beans, calabash, vegetables, late millet and cotton.	Guinea corn, millet, cow-peas, vegetables.	Early millet, maize, guinea corn, melon, groundnuts.	Fallow
II. Diko/Paiko	Yam, early maize, calabash, cow-peas, melon.	Late yam, guinea corn, millet, calabash, groundnut.	Acha or guinea corn, late millet, cowpeas.	Fallow
III. Jima/ Doko/ Katcha	Upland rice, maize, late millet, melon, red pepper.	Maize, guinea corn, beans, red pepper and vegetables.	Upland rice, maize, late millet, sweet potato, red pepper and vegetables	Maize, guinea corn, beans, red pepper, cassava, cotton.

Source: Field Survey.

farming zone also reflects the greater intensity of land use and the continuous cultivation with the aid of the use of manure and fertilizers.

Yam is usually the first crop in the cycle of rotation, and the best land is often reserved for its production. It is the main crop grown in the Mokwa/Pandogari and Diko/Paiko farming zones and the yams exported to other parts of Nigeria, known as 'Abuja yams' in



Western Nigeria and 'Gwari yams' in Kaduna and Kano areas, are produced mainly in these Gwari and Kamuku tribal farming zones. Proceeds from yam sales form 65% of farmers income in Diko/Paiko farming zone and about 55% in the Mokwa/Paiko farming zone. Upland rice production has increasingly replaced yam production in the Jima/Doko/Katcha farming zone and here yam production is mainly for home consumption. The low level of yam production in the Jima/Doko/Katcha farming zone is consistent with Nadel's claim that "Nupe is not a real yam country" (Nadel, S. F. 1942: 214), and with the fact that rice production brings the farmer a higher return per acre. This higher return per acre is crucial particularly where farmers' access to the land is limited by a higher density of population and complicated land tenure system.

Guinea corn and millet taken together are second to yam in both acreage and proportion of crops produced for the market, as well as forms the main local staple food crops. Three varieties of guinea corn are grown and these are known by their local names, Ekpa, dingorogi and kuyi. Ekpa is the most common and highest yielding variety with brownish white colour, though a purely white variety of it is grown at Paiko. Dingorogi variety is prized for the black and red dye obtained from the stalk, but as imported dyes are now widely available, ekpa variety is fast displacing it. Kuyi variety is grown on a limited scale and is cultivated mainly because of its high alcoholic content when brewed into beer. The high yielding dwarf type of guinea corn is not grown by farmers in the study area as it



does not provide the long stalks used for house-building, fencing and zanna matting.

Two crops of millet are usually grown in the year, early millet (bulrush millet) sown in April and harvested in July, and late millet sown in May and harvested in November. Early millet and maize are subsidiary crops grown mainly on account of their early maturity as 'stop-gap' crops, providing food to replenish the stock of the previous harvest before the harvest of the main crops. Early maize is preferred in the Jima/Doko/Katcha farming zone as early millet is there subjected to attack by birds. In addition, the labour required for the harvest and processing of millet which often coincide with peak labour demand on both upland and fadama rice farms might have influenced this preference.

Of increasing importance is rice production which currently forms the bulk of farmers' source of farm income in Jima/Doko/Katcha farming zone where both upland and fadama rice are produced. The growing of rice is also being undertaken in the Mokwa/Pandogari farming zone, particularly in Mokwa District where large quantities are produced in the fadama and Niger flood plains as at Rabba. Rice production in Diko/Paiko farming zone is limited in extent partly as a result of few fadama available and partly because rice production is mainly by immigrant Nupe and Hausa farmers as the native Gwari population have, in the past, not shown interest either in rice production, which they regard as 'Nupe crop' or in onion production which they regard as 'Hausa crop'. The practice of associating



certain crops with specific tribes leading to lack of adoption of such crops by other tribes regardless of its higher monetary returns is hardly compatible with the processes of rural economic development. It may be noted, however, that many Gwari and Kamuku farmers now grow both fadama and upland rice as a result of increasing commercialisation of agriculture and the higher returns derivable from rice production. Of the 71 farmers interviewed in Diko and Paiko districts 62 (87.3%) farmers now grow rice in contrast to only 13 (18.3%) of the farmers who grew rice five years before.

Other crops which are of particular importance in the agricultural production of the study area particularly in upland cultivation are red pepper, calabash, cowpeas, bean, groundnut and cotton. Red pepper and beans are produced on a large scale in Jima/Doko/Katcha farming zone particularly at Lemu, Agaie, Jima and Katcha and most of the produce is exported to Western Nigeria. Calabash, cowpea, cotton and groundnut are important secondary crops in Mokwa/Pandogari and Diko/Paiko farming zones. Large quantities of calabashes of different sizes and shapes are produced with Paiko, Diko, Lapai and Gawu as main marketing centres from where they are packed and sent to the Sudan Zone. Many farmers realise as much as £10 annually from the sale of calabashes at Lapai, Paiko, Diko, Bwari and other places in the farming zone.

With regard to fadama cultivation, no complicated rotation system exists and fadama is devoted mainly to the continuous cultivation of rice, vegetables (onion, tomato, okro, spinach etc.) and



sugar cane. Vegetables are grown on fadama from November to May and then sown to rice and sugar cane. It has already been noted that the Nupe in the Jima/Doko/Katcha farming zone make intensive use of the fadama, and that in many cases two crops of rice (sown in May and November and harvested in September/October and February/March) are produced as at Edozhigi, Wuya and Badeggi through the aid of irrigation. Onion and tomato are also sown for export mainly to Western Nigeria. Onions were until recently grown mainly by Hausa immigrants to whom fadama plots were leased in the dry season, but Nupe farmers have learnt the art from immigrant Hausa farmers and now produce a substantial proportion (over 70%) of onion produced in the farming zone. Nupe farmers in Mokwa District and in Kutigi District also grow onion in the dry season.

In contrast to this, the native Kamuku and Gwari farmers in Pandogari District and Diko/Paiko farming zones leave the production of onion on fadama to immigrant Hausa farmers. In 1968/69 farming season, the following number of itinerant immigrant Hausa onion farmers reported to the Sarkin Hausawa (Chief of the Hausa Community) of the Districts: 17 in Pandogari District mainly from Zaria Emirate; 22 in Paiko District mainly from Sokoto area and 27 in Diko (Bwari) District mainly from Kano Emirate. The itinerant immigrant Hausa onion farmers were in addition to Hausa farmers who have settled down in the Districts and who continue to grow dry season onions and tomatoes. The point to note here is that the native Kamuku and Gwari farmers give permission to immigrant Hausa farmers to grow onion and



other vegetables on fadama and upland farms through irrigation without themselves (the Kamuku and Gwari farmers) undertaking to grow such crops except at Diko where the Missionaries have succeeded in persuading some Gwari farmers to grow onion. The production of onion and other vegetables during the dry season is very profitable, and returns are sufficiently encouraging to attract farmers from far away Sokoto, Zaria and Kano every year. Kamuku and Gwari farmers are not yet persuaded to grow onion and other vegetables in spite of available fadama at their disposal and despite the absence of other competing economic activity during the dry season that might bring in higher monetary returns.

#### Factors Determining Crops Grown

In discussing the factors which determine the crops grown, it is essential to examine whether certain patterns of crop combinations emerge in the study area. Economic models of spatial distribution of farm crops assume that the economic return (or economic rent as it is sometimes called) often determines the types of crops grown under given conditions. Von Thunen has, for instance, shown how the farmer's wish to maximize returns usually lead to the emergence of concentric zones of land-use and crops, over a flat plain surface of uniform fertility and equal transport facility (Chisholm, M. 1962: 21-35). As the major input variable in the model is transport cost, it means that the costs of transporting farm crops to the market would be the main determinant of the crops to be grown and regional differential in land-use.



Following this model, it would be expected that as the main markets for the food crops produced in the Middle Belt are found in the forest and Sudan zones of the country, the Middle Belt would produce such crops as could bear the transport costs and which are not bulky or quickly perishable. Such products as guinea corn, maize, millet and rice readily come to mind. These crops could be grown under existing soil and climatic conditions while they are easily processed, stored and transported without fear of their getting rotten as would be the case with yam.

There is a noticeable pattern of crop zonation in the study area. For example, in the Jima/Doko-Katcha farming zone, grain crops such as rice, guinea-corn and millet have displaced yam and all over the study area, the production of rice is increasing at the expense of yam production. Rice is preferred to yam as it could be stored for a longer period either in processed form or in paddy. The farmer in the Jima/Doko-Katcha farming zone concentrates more on high-yielding crops (in terms of monetary returns per unit area) such as onion, pepper and sugar-cane on his farm than does his counterpart in the Mokwa/Pandogari farming zone where farm acreages are larger and farmland easily acquired. In addition, within each farming unit's farm, there is a noticeable 'zoning' in intensity of land-use, for as we earlier noticed, there is a tendency towards continuous cultivation of compound land (bayan gida) and plots near the village (gona karakara). This tendency towards crop zonation and intensity of land-use could be seen as a reflection of what Chisholm (1962: 26) regards



as the resolution of the question of competition to give the land the highest economic rent.

#### Increasing Demand for Food Crops

There are, however, deviations from this theoretical pattern. The increasing population and urbanisation in Nigeria have of land-use and crops grown. Yam is still grown in large quantities all over the study area in spite of its bulky and perishable nature responding to an increase in food production particularly in export as high prices obtainable in the consuming centres between February and July when yams locally grown in the forest and Sudan zones are in short supply leaves enough margin for the farmer. Difference in type of farmland as for instance the availability or otherwise of fadama introduce deviation into the zonation of land-use and type of crops grown. The practice of inter-cropping does not also give a clear zonation of crops as nearly the same types of crops are grown in different parts of the study area, though with varying intensities. Tribal preference for or prejudice against certain crops as would be discussed below also introduce a measure of deviation from the theoretical pattern.

In spite of the deviations from the theoretical pattern noted, it is felt that the von Thunen's model provides a useful conceptual notion of the determination of land use and crops grown. These deviations could therefore be seen as a reflection of the complex nature of human decisions and as Harvey (1966: 373) has observed, "if we recognize the all-important fact that geographical patterns are the result of human decisions then it clearly follows that any theoretical model developed to 'explain' agricultural location

patterns must take account of psychological and sociological realities". In the light of this, the factors which determine the crops



grown in the study area are discussed below.

### Increasing Demand for Food Crops

The increasing population and urbanisation in Nigeria have been accompanied by increased demand for food crops with less corresponding increase in food production particularly in the export crop producing areas of the Forest and Sudan zones. Food crop production is not expanding to keep pace with demand and in this regard, it has been observed that "Nigeria's food production has been crawling at a growth rate of 2.1 per cent and barely able to keep pace with an annual population growth rate of roughly 2.5 per cent" (Anthonio, Q. B. O. 1967: 213).

With increased concentration on export crop production, and with the emergence of manufacturing industries and rising urbanization and population in the forest and Sudan zones of Nigeria, these zones had to turn to another zone for the supply of food stuff. There resulted an increased demand for food crops produced in the Middle Belt and many farmers, who for instance, could not secure markets for their yams and guinea corn five years before claimed (during the 1969/70 harvest season) to sell all food crops produced and meant for sale, which is over 70% of the total food crops produced. As a result of the increasing demand and assured markets as well as rising prices for food crops, many Middle Belt farmers concentrate on the production of food crops in preference to export crop production.

Closely connected with the increasing demand for food crops produced in the Middle Belt is the increasing integration of the



Nigerian economy whereby an improving transportation network and better marketing arrangements for locally produced goods have enhanced exchange among different zones of the country. Improved transportation has enabled formerly remote areas within the Middle Belt to be opened up, and so made the evacuation of food crops to the consuming centres a less arduous task than it used to be. The improvements in transportation and marketing arrangement for food crops produced in the study area are to be discussed in a subsequent chapter, but here we note that the increasing demand for food crops from other parts of Nigeria and improvements in their transportation and marketing arrangements have enabled the Middle Belt farmer to expand the production of those food crops for which he has a comparative advantage compared with his forest and Sudan zone counterparts.

#### Price Rise in Food Crops

As a result of the increase in demand without corresponding increase in the supply of food crops, the prices of food crops in Nigeria have continued to rise. Table 25 shows the prices of main farm crops in 1964 and 1969 at two main marketing centres in the study area. Prices of food crops rose by 60% to over 120% between 1964 and 1969. Within the same period the prices of export crops were on the downward trend - with cotton price rising by only 16.7% while the price of groundnut fell by 30% between 1964 and 1969. The rise in prices of food crops encouraged farmers to concentrate on and expand the scale of food crop production while the production of export crops was reduced. For example, in 1967/68 crop season, 1241 tons of seed



Table 25:

PRICES OF FARM CROPS (PER TON) AT ABUJA AND BIDA 1964 AND 1969

Crop	1964		1969		Percentage Increase	
	Abuja	Bida	Abuja	Bida	Abuja	Bida
Cotton	£48:==	£48:==	£56:==	£56:==	16.7%	16.7%
Groundnut	£42:14:==	£42:14:==	£29:18:==	£29:18:==	- 30%	- 30%
Guinea Corn	£12:8:10	£20:14:10	£26:18:6	£33:3:8	116.7%	60%
Rice	£57:14:==	£40:14:6	£71:5:5	£73:13:4	75%	83.3%
Yam	£5 : 8:10	£ 9: 6:8	£12:8:11	£17: 2:3	83.3%	127.6%

- indicates percentage decrease.

Source: Prices for cotton and groundnut derived from Marketing Board Gazetted prices and prices (July each year) for guinea-corn, yam and rice are computed from Ministry of Agriculture Market Prices.

cotton and 359 tons of groundnut were sold to the Marketing Board while corresponding figures in 1968/69 were 616 tons of seed cotton and 237 tons of groundnut in the study area<sup>1</sup>

In addition, the price paid for export crops was lower than the local market price, while farmers received higher income per acre of farm devoted to food crops. For example, while the Marketing Board paid £29.18/- per ton for groundnut during the 1969/70 buying season, farmers were able to sell their groundnut at the local markets for prices ranging between £32.16/- at Paiko and Diko, £36.8/-

obtained from Local Authorities.

1. Export crop sales figures



at Mokwa and £41.18/- per ton at Doko. Moreover, while farmers had an average yield of 600 lbs. of shelled groundnut per acre giving a cash return ranging between £12 and £15, the corresponding yield per acre for yam was 6,000 lbs. with a cash return ranging between £30 and £38, while cash returns per acre of rice production is over £45. There was therefore the diversion of groundnut sales to the local markets rather than to Marketing Board agents while groundnut production was curtailed in favour of alternative food crops which are more profitable to the farmer. It is therefore noticeable that the effect of increasing demand and rising prices for food crops is to make farmers concentrate and expand on food crop production.

#### Malpractices By Marketing Board Agents

Another factor responsible for the preference for food crop production is the malpractices of the Marketing Board agents and the fact that gazetted markets for export crops are few and far apart - itself a consequence of the sparse population. Bauer, P. T. (1954) has enumerated some of the malpractices of the Marketing Board agents and a major constraint on export crop production in the study area has been lack of payment for produce purchased. Added to this was the subjecting of farmers who grow export crops to higher rates of taxation by the Local Authorities, under the pretext that such farmers have higher returns from their farm produce. Enquiries from farmers in the former centres of export crop production such as Mokwa, Kutigi, Wuya, Lemu, Kutinwengi, Agaie, Paiko, Gwagwalada, Diko and Teginia show that many farmers stopped growing export crops mainly because Marketing Board agents did not pay for produce while they as



producers were subjected to higher rates of taxation by the Local Authorities. The practice of charging each Licensed Buying Agent £5 for every market in which he operates also discouraged prospective traders in export crops and further led to the concentration, by farmers and traders, on the production and marketing of food crops to the neglect of export crops.

### Type of Farmland

Apart from climate, particularly rainfall distribution amount which affects the cycle of farming activities and type of crops grown, the type of soil or rather the type of farmland, affects crops grown and crop combination. For instance, the greater availability of fadama in the Jima/Doko/Katcha farming zone has led to a greater proportion of the farmers' farm acreage and time being devoted to rice production and to dry season onion and vegetable production. The correlation between the percentage of total acreage which is fadama and the number of farmers who grow onion is highly positive. The correlation co-efficient of 0.79 gave a co-efficient of determination of 62% at a 't' value (2.58) which is significant at 5% level. This shows that the availability of fadama is a significant factor influencing farmer's decision to grow onion.

### Land Tenure

We noted in chapter 5 that in the Mokwa/Pandogari and Diko/Paiko farming zones where population densities are comparatively low, the system of land ownership is communal and farmland is available to every member of the community. Extensive cultivation is practised in



the two zones as compared with intensive cultivation in the Jima/Doko/Katcha farming zone. The farmer in the Jima/Doko/Katcha farming zone cultivates a smaller acre of farm than his counterparts in the two zones (Table 23). In spite of this, most of the farmers in Jima/Doko/Katcha farming zone have to pay tribute to land owners in addition to their family food and cash requirements. The farmer therefore concentrates his energy on the production of high-yielding crops in terms of cash returns per acre such as rice, (both fadama and upland), onion, red pepper, tomatoes, beans and sugar cane. This he does by intensive and continuous cultivation of the farmland with the aid of manure and fertilizers which are rarely applied by the farmer in Mokwa/Pandegari and Diko/Paiko farming zones. The farmer in the latter zones however grows mainly yams and guinea-corn on his upland farm and until recently rarely grows upland rice. Even though fadama forms a higher percentage of the farmers' farm in Jima/Doko/Katcha farming zone (over 30%) the smaller size of his farm and the need to pay tribute to land-owners make the farmer concentrates on the production of crops which give high cash returns. The desire to obtain a high economic return therefore affects the farmer's choice of crops, thus illustrating von Thunen's concept of economic rent which underlies all questions of competition for the use land and regional differentiation in land-use and crop combinations.

#### Tribe and Choice of Crops

We noted earlier that in spite of the profitability of dry season onion farming, which attracts itinerant migrant farmers from



as far away Sokoto, Zaria and Kano to the study area, Kamuku and Gwari farmers still regard onion as a 'Hausa crop' and have nothing to do with its production. Can it therefore be hypothesized that tribe determines type of agricultural practice and crop combinations? Anthropologists sometimes tend to associate the adoption or rejection of new techniques to cultural arrangements and orientation of cultural systems around different ideals (Benedict, R, 1956: 187), so that the apparently irrational rejection of dry season onion production by Kamuku and Gwari farmers could be associated with the orientation of their productive capacity towards the satisfaction of certain cultural values.

There are evidences from observations on the field to support this viewpoint but these are not conclusive. Kamuku and Gwari farmers, when asked whether they grow onion or not always reply that they do not grow onion as it is a 'Hausa crop'. Their belief that the growing of onion is associated with the spread of sores and their cultural attachment to game hunting in the dry season prevent them from growing onion. In contrast to this, their Nupe neighbours now grow onion in the dry season and regard hunting as a secondary dry season occupation. This makes for a balanced allocation of time between subsistence and commercial activities among the Nupe. The Gwari and Kamuku situation is comparable with the economic backwardness discussed by Douglas of the Lele in the Congo who give hunting a high priority throughout the year as compared with their neighbours, the Bushong who think of hunting as secondary dry season activity



(Douglas, M., 1962: 211-233). Apart from the Gwari belief which associated onion growing with the spread of sores, there are other traditional beliefs and practices in the study area which have no economic basis. The Nupe for instance believe that groundnut growing leads to outbreak of smallpox while the Nupe sub-tribe, the Kede will have nothing to do with farming at all as they have traditionally been fishermen and river transporters.

These traditional beliefs and practices are however breaking down in the wake of increasing commercialisation of rural activities. The Nupe now grow groundnut though on a limited scale. The Gwari and Kamuku farmers also grow rice, which they traditionally regard as a 'Nupe crop', while the Kede now practise farming following the blockade of river transport on River Niger during the Nigerian crisis and the dislocation of fishing grounds following the creation of the Kainji Dam upstream on the Niger. The quicker adoption of onion growing by Nupe farmers may have resulted from the greater knowledge of the market (in terms of yields, prices and selling centres) for onion, as many Nupe farmers become part-time traders in the dry season, taking their farm produce to Kaduna, Kano, Lokoja, Ilorin, Ibadan and Lagos during the dry season. The greater availability fadama in Nupe areas as compared with the Kamuku and Gwari areas noted earlier may have also influenced the quicker adoption of onion growing by the Nupe. The fact remains, however, that tribal attachment or aversion to certain crops affects the choice of crops grown in the study area.



From the discussion of the factors determining crops grown it is clear that while some cultural factors may affect the farmer's choice of crops, his choice of crops is based mainly on a rational approach with careful calculation of alternative returns on different crops with profitability and adequate returns being the criteria for the production of crops be they export or food crops. The present situation in the Middle Belt is not only that food crop production "occupies a position of importance, closely rivaling that of export crop production in other parts of Nigeria" (Agbola, S. A. 1962: 103) but in addition food crop production has become more profitable to the farmer than export crops in terms of cash returns, improved marketing arrangements and freedom from arbitrary taxation through the fiscal manipulation of the Marketing Board and discriminatory taxation by the Local Authorities. The rising prices of food crops have also had the effect of encouraging farmers to increase their level of production and income substantially and this development is to be discussed in chapter eight.



TRANSPORTATION AND MARKETING OF AGRICULTURAL PRODUCEThe Role of Transport in Rural Development

The role of transport in facilitating the opening up of frontier zones and in enhancing the intensification of rural agricultural production as well as in promoting the growth of a modern exchange economy is widely recognised. In recognition of this role, Gulley (1959: 66) has emphasized the importance of transportation development in the opening up and development of the American frontier. Hodder (1968: 192) has also suggested that in the early stages of economic advancement, transport is probably the key to development. In the case of Uganda, it has been shown that the development of transportation facilities assisted the expansion of cotton production and trade (O'Connor, A.M. 1965), while the expansion of groundnut production in Kano has been traced to the extension of the Northern Railways to Kano (U.A.C. 1949 & Barbour, K.M. 1966: 16).

Improved transport often leads to higher prices for farmers, increases supplies, reduces shortage to consumers, and gives employment opportunities to transporters and traders thereby generating further economic activities. In the development of commercialised agriculture, it has been claimed that fertilizers, improved strains of seed, education and other subjects are all of the greatest importance. But the need for transport is prior to all these (Clark, C. & Haswell, M. 1964: 216). This claim is particularly valid in the case of the Middle Belt where, apart from the sparse population, transportation is probably the most formidable problem of development.



## Transport Facilities

Transport facilities in the study area are poorly developed; Fig 17 shows the few all-season and dry-season motor roads and rail roads found in the study area. In 1969, the study area covering an area of 15,812 square miles had only 1,025 miles of all types of motor roads giving an average of 1 mile for every 16 square miles. This is in contrast to Kano State which, with an area of 16,360 had 1,829 miles of all types of motor roads giving an average of 1 mile for every 9 square miles.<sup>1</sup> The poor development of road network in the study area is mainly due to the low population densities, on which government policy for the development of road networks is based. For example, in the Ten-Year Development Plan launched in 1946, it was government policy to develop a greater road network in areas with high population densities (Nigeria: 1946). This policy set the pattern for subsequent road development programmes in Nigeria, so that sparsely populated areas, particularly the study area, continue to receive low priority in road development. In addition, as export crops are not produced on a large scale in the study area, it had the disadvantage of having no share in the Marketing Board grant for the development of feeder roads.

The railways which cross the study area are designed to tap the resources of the Sudan zone and assist import and export trade. No railway feeder roads were constructed as was the case in the Sudan zone.

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1. For the study area miles of roads were obtained from the Ministry of Works, the Local Authorities and measurement of road miles on map. Road mileages in Kano State were obtained from Table 169 of Northern Nigeria Statistical Yearbook, 1966.

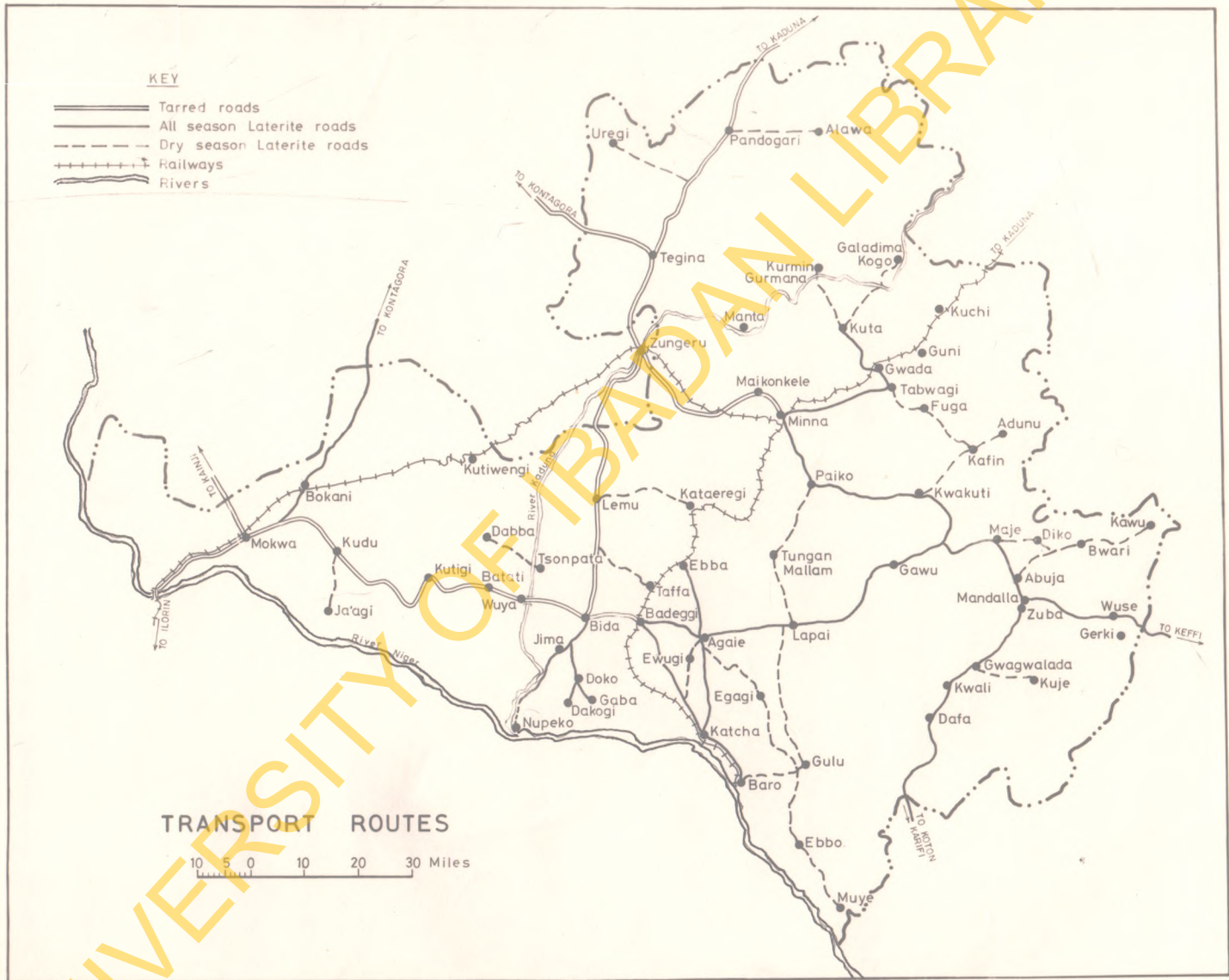


Fig 17



In addition, yams which used to be the main cash crop often get rotten when shipped in large quantities in railway wagons as a result of delays in transporting them to the consuming centres. The existing good motor roads are trunk roads connecting the forest and Sudan zones while local feeder roads are few and those that have been built are poorly maintained apart from those found in the Jima/Doko-Katcha farming zone. Even here, delays often ensue during rainy seasons and when bridges are broken as for example when the Bida-Jima/Doko road was closed between 8th September 1965 and 10th February 1966 due to a broken bridge. This breakdown, which occurred during the harvest season, adversely affected the marketing of rice produced in Jima/Doko and Kede Districts. Local lorries for the collection of produce to the main marketing centres are few so that in 1969 only 34 commercial lorries were licensed in the study area, and of these, only 13 were used for produce collection locally while the others were used in other parts of the country.

As a result of tsetse infestation, donkeys are not used on any appreciable scale as is the case in the Sudan zone. For the six Local Authority areas in 1968/69 financial year, only 35 donkeys were recorded and these were mainly owned by Hausa traders in the main market centres. The use of river transport is mainly for trade with the forest zone through Lokoja and this is confined to the Niger valley. The use of bicycles for produce evacuation is rising but in spite of this, the bulk of food crop transportation is based on human portage mainly by women. Distances covered and load carried by human portage are necessarily severely limited to about 30 miles a day and 80 lbs. of



produce while the scale of individual marketing operations by farmers and traders remain severely restricted. Human portage is prohibitively expensive and it is said to be some nine or ten times as expensive as transport by water, motor vehicle or rail (Hodder, B.W. 1968: 194). For example, the cost of transporting a bag (100 mudas) of guinea corn by head portage from Paiko to Minna in July 1969 was 12/- i.e. 25% of its value (48/-) at Paiko. In contrast to this, transportation by motor vehicle costs 4/- which is only 8.3% of its value at Paiko or a third of what it costs by head portage. In addition, it has been suggested that the extent of human portage - if it could be measured - might well provide one of the more illuminating indices of levels of economic development (Bauer, P.T. and Yamey, B.S., 1957). Rural economic development in the study area will rank very low if measured with this index in view.

A number of improvements in transportation facilities in the study area is however noticeable. A bridge over river Kaduna at Wuya was opened in November 1964 and this replaced the old hand-operated ferry over the river. Following the completion of the bridge, the average number of lorries passing through the road per day rose from 16 in January 1964 to 43 in January 1965 and to 76 in January 1969.<sup>1</sup> The bridge facilitates the evacuation of produce from the study area to southern Nigeria and considerably reduced the time involved in transporting produce by lorry from Bida to Ibadan from an average of two days to less than one day. In addition, the cost of transporting one bag of rice by road from Katcha to Ibadan was reduced from an average of 40/- to 25/-.

1. Based on information obtained from the Ministry of Works, Bida.



The tarring of the Mokwa/Bida/Badegi and Bida/Zungeru/Tegina roads and the construction of dry season feeder roads to the rail and motor roads are also enhancing the evacuation of produce. Many local traders and transporters from the forest and Sudan zones of the country now operate commercial lorry transport for the evacuation of produce to other parts of Nigeria. The Nigerian Railway Corporation also increased its services on the Minna/Baro line from once a week in 1966 to thrice a week in 1969 to cope with the rising traffic generated by increasing demand for food crops in other parts of the country. All these improvements continue to facilitate local movements of people and goods and the evacuation of farm produce to other parts of Nigeria.

#### Effects of Transportation on Crop Marketing

The effect of the poor development of transportation in the study area has been the limitation of the level of production and marketing of food crops owing to the difficulties of crop evacuation. Valuable time is lost in collecting and transporting produce and in most cases, the cost of transport accounts for over 35% of the total value of food crops at the consuming centres. The number of intermediaries - carriers, brokers, traders and wholesalers is unnecessarily increased leading to high marketing costs and low prices to farmers.

Tables 26 a-c and 27 a-c show the value of the three main food crops produced for sale and the proportion of it representing farmers' income, transport cost and broker/wholesalers' profits. It can be seen that for yams marketed at Gwagwalada, the farmer receives 67% of the local price while his percentage share drops to about 40% of the value



TABLE 26(a): YAM MARKETING COSTS ( PER TON)

Period	Return to Farmer	Local Middle-mens' margin	Trader/ Broker's Commission	Total Local Sale Price	Transport Cost to Ibadan	Sale Price at Ibadan	Middle-mens' margin at Ibadan
Fed.-April 1969	£12	£4	£2	£18	£10	£32	£4
May-July 1969	£16	£5	£3	£24	£11	£40	£5

Source: Local prices and interview with brokers and wholesalers at Gwagwalada (Abuja).

TABLE 26(b): GUINEA CORN MARKETING COSTS PER BAG (100 MUDUS\*)

Period	Return to Farmer	Local Middle-mens' margin	Trader/ Broker's Commission	Total Local Sale Price	Transport Cost to Kaduna	Sale Price at Kaduna	Middle-mens' margin at Kaduna
Jan. 1960	25/-	4/-	2/-	31/-	18/-	57	8
July 1969	40/-	5/-	3/-	48/-	20/-	78	10

\* Local standard measure weighing 2 lbs. 4 ozs. A bag of grain contains 100 mudus.

Source: Local prices and interview with brokers and wholesalers at Paiko.

TABLE 26(c): RICE MARKETING COSTS PER BAG (100 MUDUS\*)

Period	Return to Farmer	Local Middle-mens' margin	Trader/ Broker's Commission	Total Local Sale Price	Transport Cost to Ibadan	Sale Price at Ibadan	Middle-mens' margin at Ibadan
Jan. 1969	84/-	12/-	20/-	116/-	24/-	170/-	30/-
July 1969	142/-	16/-	25/-	183/-	26/-	249/-	40/-

\* Local standard measure weighing 2 lbs. 12 ozs. A bag of grains contains 100 mudus.

Source: Local prices and interview with brokers and wholesalers at Katcha.



TABLE 27(a): YAM MARKETING COSTS (PER TON)

Period	Sale Price at Ibadan		Farmers' Income		Transport Cost		Middlemen's margin	
	£	%	£	%	£	%	£	%
Feb.-April 1969	32	100	12	37.5	14	43.8	6	18.8
May-July 1969	40	100	16	40.0	16	40.0	8	20.0

TABLE 27(b): GUINEA CORN MARKETING COSTS PER MUDU

Period	Sale Price at Ibadan		Farmers' Income		Transport Cost		Middlemen's Margin	
	£	%	£	%	£	%	£	%
Jan. 1969	57/-	100%	25/-	43.9%	22/-	38.6%	10/-	17.5%
July 1969	78/-	100%	40/-	51.3%	25/-	35.9%	13/-	12.8%

TABLE 27(c): RICE MARKETING COSTS PER MUDU

Period	Sale Price at Ibadan		Farmers' Income		Transport Cost		Middlemen's Margin	
	£	%	£	%	£	%	£	%
Jan. 1969	170/-	100%	84/-	49.4%	36/-	21.2%	50/-	29.4%
July 1969	249/-	100%	142/-	57.0%	42/-	16.9%	65/-	26.1%

Source: Tables 27(a) - (c) were derived from Tables 26(a) - (c).



of the yam when sold at Ibadan the main consuming centre. Transportation accounts for nearly 20% of the local value and this rises to over 40% when sold at Ibadan. For comparative purposes, the F.A.O. estimated that in supplying food crops from the Sudan to the forest zone, transport costs alone accounts for about 25% of the cost in the forest zone and the F.A.O. regards this as far from being satisfactory (U.N.F.A.O. 1965). The same trend is seen in guinea corn and rice sales, though in the case of rice the farmer receives a higher proportion of its value, ranging between 49% and 57% of the wholesaler's price at Ibadan. This is due to the greater development of transportation facilities at Jima/Doko-Katcha farming zone where road and rail transports are easily secured for produce evacuation to the consuming centres of the forest and Sudan zones.

TABLE 28: MARKET PRICE OF MAIN FOOD CROPS, JULY 1969

Market	Yam		Guinea Corn		Rice	
	12 lbs.	Ton	mudu 21b.4oz.	Ton	mudu 21b.12oz.	Ton
Mokwa	1/2	£10:16:=-	7d	£29: =:8d.	1/9	£71: 5:5d.
Pandogari	1/1	£10: 2:3	6d	£24:17:9d.	1/7	£64:10:=-d.
Diko	1/1	£10: 2:3	5d	£20:14:10	1/5	£57:14:=-d.
Paiko	1/2½	£11: 6:=-	5½d	£22:16: =	1/6	£61: 1:10
Doko	1/9	£16: 6:8	7½d	£30: 3: =	1/9	£71: 5: 5
Katcha	1/9	£16: 6:8	7½d.	£30: 3: =	1/10	£74:13: 4

Source: Field Survey in July 1969.



Improved transportation facilities is reflected in market prices as food crop prices in areas served by good motor roads and rail are often higher than in areas of poor road development. This can be seen in Table 28 which shows market prices in the different case study markets where the locational advantage of areas served by good roads can be seen. Katcha and Doko markets which are served with good all season roads (in addition Katcha is served by rail and river transport) have the highest market prices, while Diko and Paiko where transport facilities are poorly developed have the lowest prices. Mokwa and Pandogari have a measure of advantage of being located on the Jebba-Kaduna road but this advantage is limited by lack of feeder roads in the Districts.

Other factors apart from transportation facilities may however contribute to the price differentials. For example, Mokwa, Pandogari, Diko and Paiko are main centres of yam and guinea-corn production while little yam is grown in Katcha and Doko Districts where the economy is dominated by rice production. It is to be noted however that even though Katcha and Doko Districts are the main centres of rice production, the price of rice is higher than in the other Districts. This further shows the importance of developed transportation facilities which has enhanced the development of food crop marketing in the two Districts.

A corollary of poor transportation facilities is delays in produce evacuation arising from roads becoming impassable to lorries during the rainy season. The untarred Trunk B roads maintained by the Ministry of Works are often closed to traffic for 24 hours following heavy rainfall and this usually leads to delays and higher transportation costs. For



example, wholesale traders spend on the average three days to and fro Abuja for yam purchase between February and April, but between May and July the average number of days rises to five. This is correspondingly reflected in the 25% average rise in transport costs. It is recognized that the seasonality of food production and supply relative to demand contributes to seasonal price variation, yet the problem of food crop evacuation in the rainy season contributes, in no small measure, to seasonal price variations.

It therefore appears that improved transportation often leads to improved marketing and expansion of rural production with consequent increase in income to the farmer. Difficulties of produce evacuation, particularly where storage and processing facilities are poorly developed as in the study area, is probably one of the most important disincentives to increased production for the market.

It may also lead to misallocation of resource since relative ease of evacuation rather than relative value or efficiency of production may determine crops grown and farm investment. With the gradual improvements in transportation facilities in the study area, as noticeable in the Jima/Doko/Katcha farming zone, development of the rural economy in terms of increased food crop production and higher prices to farmers provide incentives for the expansion of agricultural production and marketing in the Middle Belt of Nigeria.

#### The Structure of Food Crop Marketing

Food crop marketing in Nigeria is characterized by a large number of transactions involving producers, several stages of middlemen and



consumers. This is represented schematically in Fig. 18 which shows the chain of intermediaries between farmer-producer and consumer. As food crops are produced in small quantities scattered over wide areas in the Middle Belt, a large number of persons are required to assemble these small quantities for the wholesaler and retailer in the consuming centres. Quite often, the food crops pass through many more hands in the channel of distribution than they do in either the forest or Sudan zones before they are delivered at the main consuming centres where they are further broken into small quantities as required by consumers.

The local trade in the producing area is dominated by small-scale middlemen particularly women. Capital requirement is low, except for a few wholesalers, and entry and exit into food crop trade is usually at a low level. Labour is often substituted for capital, particularly in transporting commodities over short distances. Internal exchange of food crops with other parts of Nigeria is subject to a multi-chain distribution channel and in this regard, it has been observed that "multi-chain channels" in food crop marketing, "tend to be connected with low levels of production, retailing activities and consumers' demands" (Onakomaiya, S. 1970: 84). The low consumers' demand and high marketing (especially transportation) costs have resulted in low prices paid to the farmer when compared with what his counterpart in the forest and Sudan zones received for the same unit of food crops offered for sale. This low price for food crops was interpreted by the farmer as indicating low demand for his productions. He was therefore denied the incentive to expand his level of agricultural production. In consequence, the Middle Belt farmer was

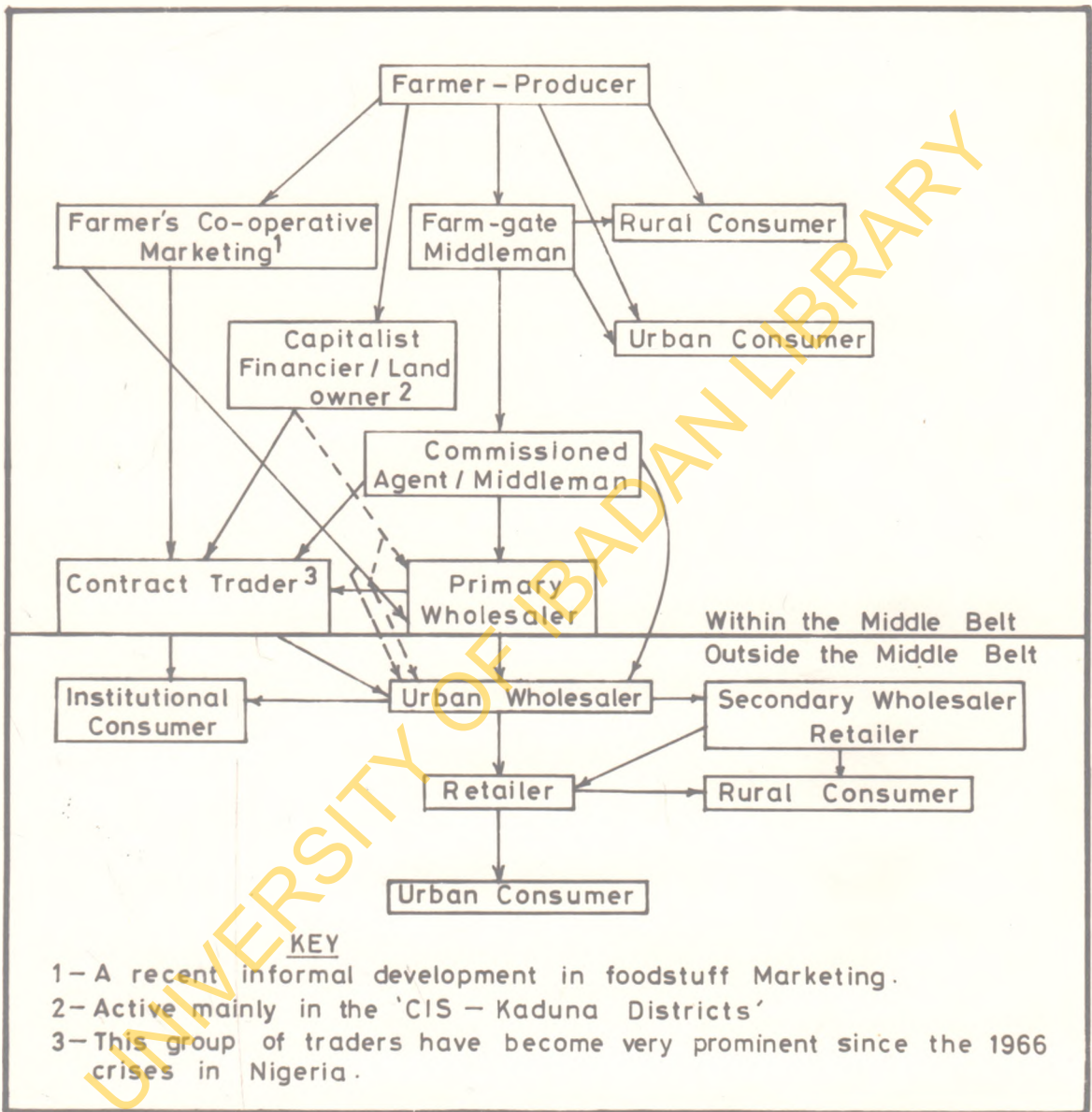


Fig 18. CHAIN OF INTERMEDIARIES BETWEEN PRODUCERS AND CONSUMERS IN THE INTERNAL EXCHANGE ECONOMY OF THE MIDDLE BELT.



producing below capacity thus leading to a low level of rural economic activities and economic development.

In the past five to six years, however, demand from other parts of Nigeria for food crops produced in the Middle Belt has been stepped up as a result of rising population, increasing urbanisation and the development of secondary occupations in Nigeria. The Middle Belt farmer has responded by increasing his level of production while better marketing facilities are being developed. The long chain of foodstuff distribution is gradually being reduced and with the advent of informal farmers' cooperatives, better knowledge of the market and the entry of contract-traders and large scale wholesalers, the Middle Belt farmer as shown in Table 25 is obtaining comparatively higher returns for his farm produce with consequent improvement in rural incomes and development. However, the problems of low level of production and high cost of marketing resulting from sparse population and poorly developed transportation facilities are still major bottlenecks to the full realisation of the potentialities of the Middle Belt. The problems of food crop marketing will be discussed below, but in the mean time we take a look at the classification of markets and market location in the study area.

#### CLASSIFICATION OF MARKETS

A number of factors can be taken into account when classifying markets in the study area. One possible classification identifies types

1. The term market is here defined as "an authorized public gathering of buyers and sellers of commodities meeting at a place more or less strictly limited or defined at an appointed regular intervals". We however note that wayside lorry stops and collecting points are incipient market places. (Adapted from Polly Hill's quotation 1963: 450).

according to importance in their wholesaling function. This was the method adopted by Prof. Skinner (1964 & 1965) when he classified Chinese markets hierarchically as 'minor', 'standard', 'intermediate' and 'central'. Market gradation in terms of proportion of produce which enters the internal exchange economy as for instance the village, district and urban markets can be recognized, yet the strictly hierarchical order of markets is limited by the lack of hierarchical division of market functions as between wholesale and retail market functions while seasonal fluctuation in market activities also render such a classification inapplicable to the study area. In this connection, it has been observed that "the inappropriateness of such a hierarchical typology is one of the characteristics of the markets of many regions of West Africa" while "the 'central place theory' developed by Christaller and others" is of limited application (Poly Hill, 1966: 298). In addition, it has been observed that "a more conclusive demonstration of the relationship between periodic markets (all but two of the markets in the study area are periodic) and Central Place Theory must await some advances on the methodological front" (Smith, R.T.H. 1970: 35).

In the case of Yoruba markets, the classification given by Hodder (Hodder, B.W. 1965: 49 and 1969: 59) distinguishing between 'periodic markets' and 'daily markets' was found to be of little use here as all the markets are periodic markets with the exception of the urban markets of Bida and Nima. Agboola's (1962: 125-126) classification based on a combination of factors such as settlement rank and origin, mode of operation and the role played by the market in internal or local exchange,



distinguishing rural farm, village, medium-size and premier urban markets is more relevant to the study area. In classifying the markets we therefore take into consideration a combination of factors such as the degree of participation in the internal exchange economy (in terms of whole-sale crop purchases for resale in other parts of Nigeria), the size of the market and location in urban or rural areas. Four types of markets are thus distinguished and are located on Fig. 19. The four types are: (i) Roadside markets; (ii) Village markets; (iii) Central markets; and (iv) Urban markets.

Roadside Markets: These are usually situated on roadside or on road junctions on the way to the main markets or on the main North-South and Mokwa-Bida-Abuja-Minna roads where passers-by, farm-gate middlemen or itinerant traders could stop to buy food crops. Roadside markets serve as 'relay stations' used as exchange market between the urban centres and the rural districts. Such roadside markets are often not on settlement sites and are found at Wuya-Suma near Bida and Bosso near Minna. They are particularly numerous during the main yam exporting season (February-July) in the Abuja and Minna yam producing areas. Roadside markets are not permanent features and are apt to be seasonal in operation with many of them coming into being during the harvest seasons and folding up during the growing season. Such crops as yams, guinea corn, cowpeas, sugar-cane and vegetables are usually offered for sale at roadside markets.

Village Markets: These are very numerous (though usually far apart) in the sparsely populated Districts of the study area. The settlements served by the village markets are usually isolated villages and home-



steads and since such settlements are more often than not situated away from the main roads and paths, village markets are usually situated along lines of communications or in the central village such as the Village or District Headquarters where food crops are easily marketed. In many cases such as at Yebu in Kwali District where motor roads are poor and human portorage is the main means of transportation, prices are extremely low as farmers experience difficulties at marketing their farm products. The village markets are the primary outlets for the farmer's farm products, and are frequented by men and women alike.

The internal exchange market is mainly in the hands of women, and from them farm-gate middlemen, commissioned agents and middlemen who are resident in the towns or central market areas purchase products for re-sale or delivery to primary wholesalers in the central markets. Farmers also buy in return from itinerant traders imported household goods and provision such as kerosene, torch-batteries, cloths, salt etc. There is now a growing tendency for farmers who bring their produce to the village market to combine their produce together and invite wholesalers or traders from the District headquarters or central market areas to purchase produce from them in bulk. Even though prices are still lower than those obtainable at the Central Markets, the farmer is saved the trouble of selling in small lots, as well as the need to pay the farm-gate middleman and commissioned agents' margins. With improved transportation and increasing demand for food crops from other parts of Nigeria, many village markets such as Kwakuti (on the Minna-Abuja road) and Gwagwa (on the Abuja-Keffi road) are now playing the role of central markets and acting as collecting and



marketing centres for food crops exported to the Sudan and Forest zones of Nigeria.

Central Markets: These are particularly numerous in the 'Cis-Kaduna' Districts of high population densities; within a radius of thirty miles of Bida, there are eight such markets (Kutigi, Lemu, Doko, Jina, Badeggi, Garba, Agaie, Lapai), while in contrast to this, central markets are few and far apart in the sparsely populated Districts. The Central markets are the main collecting and exporting centres for food crops produced in the study area. Crops purchased in the roadside and village markets as well as those produced nearby are taken to the main markets for purchase by wholesalers and exported to the forest and Sudan zones of Nigeria.

Three of the central markets could be classified on account of the magnitude of their trade with other parts of Nigeria as regional or export-import market. These are Katcha, Badeggi and Gwagwalada. Katcha is situated on River Niger and is served by all-season roads, railway and river transport. It is the main entrepot in the study area and here traders from many parts of Nigeria converge to trade for two or three days in the week (Thursday to Saturday - though Friday is the main market day). Imported goods such as cement, corrugated iron sheets, bicycles, etc. and local products such as oil palm and kola nuts are brought from the forest zones by boats and lorries for distribution in the study area or re-export by road and rail to other parts of Northern Nigeria. Food crops particularly rice, onion, vegetables and fish are transported to the South while rice, guinea-corn and mango are railed to the North. For example, on Friday 21st March 1969, 17 seven-ton lorries and 15 boats with



capacities ranging from 50 to 300 tons were loaded with farm produce for export at Katcha while corresponding figures for the 28th of March were 20 lorries and 13 boats. Badeggi also specializes in the export of rice, beans, pepper and sheanuts to the forest zone and the export of guinea-corn, millet and mango to the Sudan zone by rail. Gwagwalada is the main yam marketing centre in the Abuja yam producing area, and between January and July each year, the market takes on the appearance of a daily market as at least 5 seven-ton lorry loads of yam originate from there everyday.

It is the degree of participation in the internal exchange economy and the size of the market in terms of attendance and products offered for resale in other parts of Nigeria that differentiates the central markets from the village markets. Table 29 shows the difference in patterns of marketing at Gwagwalada (Central market) and Dafa (village market). Both are situated in the yam producing Districts of Kwali in Abuja Emirate and are located 11 miles apart on the Abuja-Koton-Karfi road. Gwagwalada village area has a population density of about 55 persons per square mile while corresponding figures for Dafa village area is about 20. Dafa is one of the four markets supplying Gwagwalada with farm produce and is attended mainly by the local population and itinerant traders resident in Abuja Emirate. Gwagwalada on the other hand is the main market centre for Kwali District, and traders from within and outside Abuja Emirate - some coming from as far away as Jos, Lokoja and Ibadan attend the market to buy yams for the southern markets and grains for the Northern markets.

Urban Markets: These are the markets at Abuja, Bida and Minna. The



Abuja market is a periodic 7-day market and it is held every Sunday though a small daily market is held near the Emir's palace. The Abuja market serves as the main market for imported goods for Abuja Emirate as well as the main marketing centre for yams and grains produced in the Emirate. Many traders from Western and Northern Nigerian towns are resident in the town; in 1969 there were 28 yam traders and brokers from Western Nigerian towns and 21 yam and grain traders and brokers from Northern Nigerian towns.

There are four daily markets in Bida - Usman Zaki, Masaga, Umoru Majigi and Dauda. The main market (Baban Kasuwa) is Usman Zaki with a night market close by. Bida is the main centre of trade in food crops in the study area, and from here many traders travel to all the Districts in Niger Province to collect foodstuffs mainly for export to the urban areas of Southern Nigeria. Between September 1969 and June 1970, the Ministry of Agriculture at Bida estimated that the following quantities of food crops were bought and taken from Bida to Western Nigeria: 10,500 tons of rice; 2,760 tons of beans; 225 tons of onion; 16 tons of melon and 12 tons of red pepper, while 600 tons of rice, 1,500 tons of guinea-corn and 1,200 tons of millet were taken to urban areas of the Sudan zone.

The Minna urban market which is held daily is the main marketing centre for grains and yams grown in the Gwari areas. This was formerly a periodic market held on Wednesdays and Fridays but it became a daily market since the stalls were built in 1956. Wednesday and Friday are, however, usually the peak market days when produce is brought from the Gwari Districts mainly by human portorage. From Minna, the food crops



TABLE 29: PATTERNS OF TRADE AT GWAGWALADA AND DAFI MARKETS

Commodities/Particulars	Gwagwalada Estimated Quantity and Number	Dafa Estimated Quantity and Number
Yam	90 tons	20 tons
Yam flour	3 "	$\frac{1}{2}$ ton
Guinea-corn	5 "	1 "
Millet	4 "	1 "
Selling points for processed food	15	3
Yam and grain traders resident in Abuja Emirate	25	9
Yam and grain traders resident outside Abuja Emirate <sup>1</sup>	17	2
Traders in Imported material	27	9
Total attendance	3,000	650
Lorries in the market	9	2

1. Wholesale traders mainly from Bida, Katcha, Badeggi, Agaie, Iapai, Minna, Jos, Lokoja and Western Nigeria.

Source: Average of rough censuses carried out on 5th and 9th April, 1969 at Dafa and on 6th and 10th April, 1969 at Gwagwalada.

are transported by rail mainly to the urban areas of the Sudan zone, while most of the yams known as 'Gwari yam' in Kaduna originate from Minna Market. Between January and July 1969, the following produce were railed to the North from Minna: 4,200 tons of yams; 1,200 tons of cowpeas; 850 tons of guinea corn; 600 tons of millet; 200 tons of rice and 60 tons of



yam flour. In addition, 950 tons of rice, 150 tons of guinea corn and millet and 60 tons of yams were railed to Western Nigeria.<sup>1</sup>

Another type of market which may be noted in the study area is night markets which serve mainly local needs. There are three night markets in the study area and they are located in the Nupe towns of Bida, Agaie and Jima. The Bida night market is a daily market and has been described by Nadel (1942: 42-3) as 'the centre of Bida's pulsating life' in that activities in the market are a combination of commercial and social life. The night markets at Agaie and Jima are continuations of the 7-day and 4-day market weeks respectively and their functions are more or less the same as that of the Bida night market.

#### MARKET LOCATION AND DISTRIBUTION

The local<sup>1</sup> of markets (Fig. 19) may be seen to reflect three factors: (i) population density and patterns of settlement; (ii) settlement rank; and (iii) lines of communications. Markets are more numerous and comparatively more involved in the internal exchange economy in the relatively densely populated Districts of the study area. The Central markets are found mainly in the main centres of population and this is particularly demonstrated in the 'Trans-Kaduna' and 'Cis-Kaduna' Districts of Nupeland. For example, the three 'Trans-Kaduna' Districts with a population density of 23 persons per square mile had 3 markets while the five 'Cis-Kaduna' Districts with 65 persons per square mile had, in addition to the markets in Bida, 14 markets. It should be noted however that the number of markets does not necessarily reflect the pattern or level of trade going on in the market as can be seen in Table 29 where the volume

1. Information obtained from the Commercial Officer, Nigerian Railway Corporation, Minna.





of trade and commodities offered for sale at Gwagwalada can be compared with that at Dafa.

In his study of Yoruba periodic markets, Hodder found a similar relationship between market distribution and population density in that "the distribution of period markets .... reflect in general the broad pattern of population distribution "as market distribution "is most continuous in the ..... relatively densely populated country" (Hodder, B.W. 1969: 61). In addition, his observation that variations in the density of periodic markets "seem to be associated most closely with areal differentiation in the patterns of settlement" is also relevant in our part of the Middle Belt as the higher density of markets in the 'Cis-Kaduna' Districts may be seen to reflect the high proportion of villages as distinct from the type of hamlet settlements in the sparsely populated Gwari Districts discussed in Chapter three.

Apart from roadside markets nearly all the markets are located in administrative headquarters of Districts or Village Areas. Unlike in the Yoruba areas where Hodder noted that periodic markets show little correspondence with "the distribution, size or hierarchy of rural or urban settlements" (Hodder, B.W. 1969:62), markets in this part of the Middle Belt, are easily identified with settlement rank. Even though there are a few markets which are not on settlement sites, such as the minor roadside markets, the main markets are located in administrative headquarters which are usually centres of population concentration. The association between settlement ranks and markets could be traced to the history of settlements and population distribution in the area, in that most of the

large settlements grew as a result of protection the chiefs offered from slave raids of the late nineteenth century, while the present high population densities and intensive land use in the 'Cis-Kaduna' Districts owe their origin to the protection offered by the Fulani Emirs in the area. Extensive areas to the west, south-east and north-east of the study area without major settlements and administrative centres have few markets. Skinner's (1962: 255) observation that "the power of the chiefs makes markets possible" is very relevant here, for it is the chiefs who in the first place make expanding settlements possible by offering protection, and it is they who give royal prerogatives for the establishment of markets. Smith also notes the close association between the headquarters of the village chief and the development of a regular market among the Hausa of Northern Nigeria (Smith, M.G. 1962: 305-306). Nadel also notes that royal delegates in Nupe Districts have to approve the establishment of markets and arrange for their consecration by Mallams (Nadel, S.F. 1942: 323). Even though Polly Hill observed that Skinner's idea may not be of general application (Polly Hill, 1966: 299), it appears that there is a close connection between chiefs and markets in the study area. As markets are usually sources of revenue, through the payment of tolls, and places where royal orders and important decisions are announced, chiefs have sought to locate markets in their headquarters so that the main markets are often associated with the District headquarters.

The development of roads and railways has however modified the location of markets as some of these, especially the roadside markets, are now found along the main lines of communication. Wuya-Suma market



near Bida is a collecting point by farm-gate traders for Bida market while Kwakuti market on the Abuja-Minna road has also developed at a point where roads intersect and a settlement is now growing up at the site. This development highlights the recent trends in population movements whereby many settlements are being founded along the main roads, while markets develop to serve as outlets for food crops produced in the new settlements.

#### Market Periodicity

Two market weeks are recognisable in the area and these are the 4-day and 7-day market weeks shown on Fig. 20. It has been observed that periodicity is advantageous to those whose economic activities are diffuse (Folly Hill, 1966:301). This observation is of especial relevance to the study area in that the time dimension given by the market periodicity allows producers to attend to the work on the farm and to the processing of food crops before marketing.

The 7-day markets are regarded as the more important ones and in the Nupe Moslem areas, the 7-day markets are usually held on Fridays whereby marketing can be combined with worship at the Central Village or District mosques. The 7-day market is common in the Sudan zone among the Hausa and it is gaining in importance as a result of Islamic influence. 4-day markets are also widespread in the study area, providing outlets for food crops produced in nearby villages and collecting centres for local traders who resell to middlemen wholesalers. Nadel's statement that markets are held "every fifth day" must have been based on the Nupe 4-day cycle usually referred to by the Nupe as five days (Nadel, S.F.

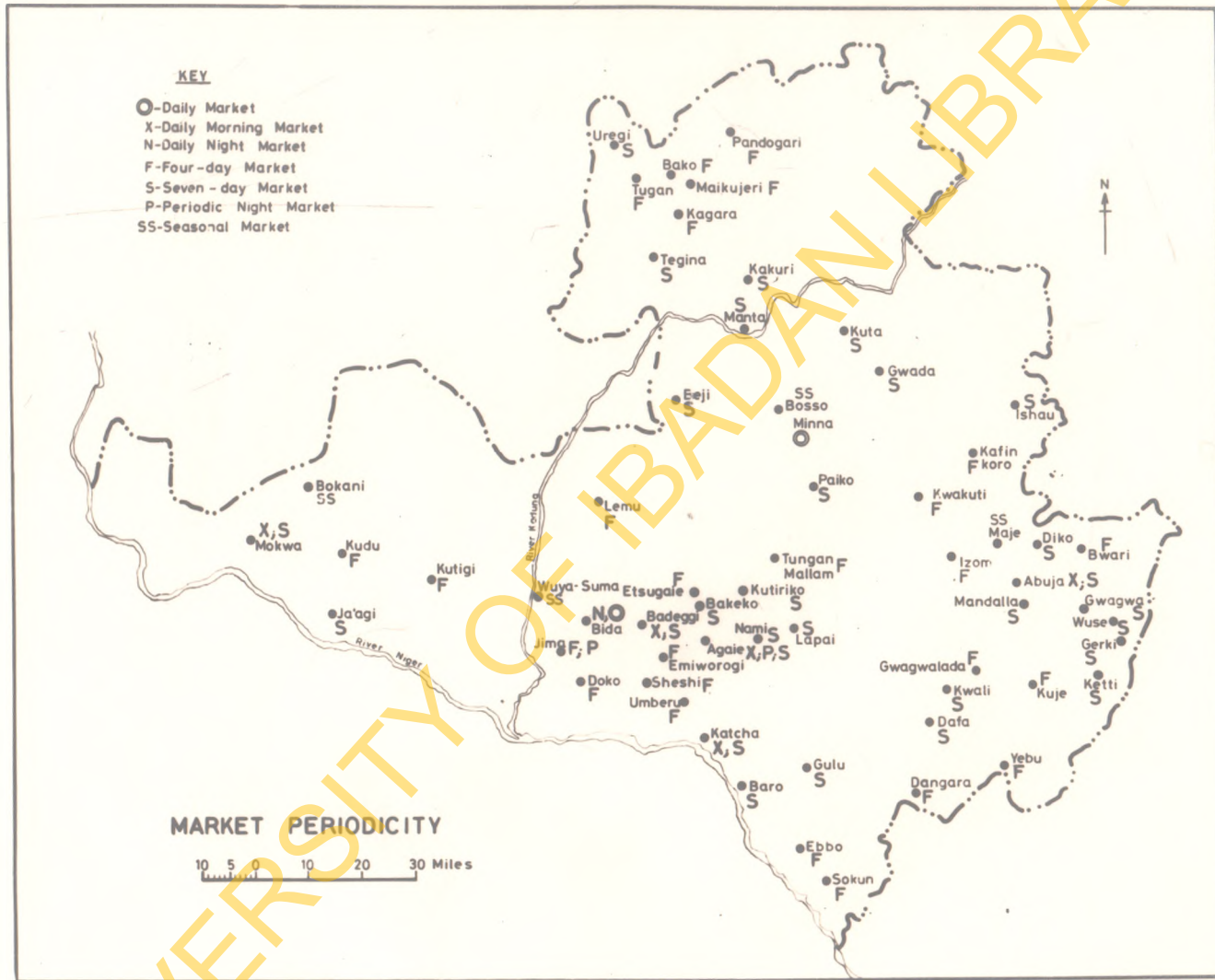


Fig 20



1942:321). As noted earlier, markets are held daily in two urban centres at Bida and Minna, though daily morning markets are held in five other markets at Badeggi, Katcha, Mokuwa, Agaie and Abuja. During the harvest periods, some roadside markets are also held daily and these provide outlets for products produced nearby.

Market rings are not a common feature of marketing in this part of the Middle Belt as they are in Yoruba areas or the Middle Belt area south of the Niger (Hodder, B.W. 1961 and Agboola, S.A. 1962: 128). This may be due to the low settlement density and greater importance of the 7-day Friday markets as well as the tendency for each administrative unit to establish its own market. Apart from the fact that markets are usually far apart in the sparsely populated areas, markets are usually established and held on the same day in relatively densely populated adjacent Districts. For example, within 5 miles of Lapai, there is another market, Nami in Agaie Emirate which is held on the same week day (Tuesday) as the Lapai market. Within Abuja Emirate also, Gwagwa market is held on the same week day (Saturday) as Wuse which is about 5 miles apart. Inter-village dependence and exchange noted in the case of Afikpo markets (Ottenberg, J. & P. 1961) is less developed in this area as agricultural production is primarily for other parts of Nigeria.

There is however a number of market rings, one of which is found in the north-west part of the study area where the 4-day markets of Kakuri, Tegina, Pandogari and Mairuweri are held periodically in that order. The 7-day markets around Abuja are also held on the following days: Madala on Thursday; Diko and Gwagwa on Saturdays and Abuja on Sundays.

These do not however conform to Hodder's definition of a market ring as a system "composed of a complete and integrated sequence of markets taking place over 4-day or multiple of 4-day periods" (Hodder, B.W. 1961: 109).

### The Role of Middlemen in Crop Marketing

Earlier in this chapter we referred to the multi-chain distribution channel between the farmer-producer and the ultimate consumer and this was depicted in Fig. 13. The intermediaries between the farmer-producer and the consumer are regarded as middlemen, and they perform a number of economic functions in organizing the collection of food crops from the farmer and delivery to the consumer. They are often involved in a series of activities such as the collection, assemblage, bulking, transportation and distribution of food crops to consumers. Every middleman in the chain of food crop distribution adds a little margin to the marketing cost and through the series of middlemen a considerable amount is added to the marketing cost with consequent reduction in the farmers' income as well as increase in consumer price.

The primary sale of food crops is undertaken by the farmer's wife who in some cases purchases the crops from her husband. She in turn sells to the farm-gate middleman or the trader in the market. At this stage, the dillali<sup>1</sup> - commission agents or brokers enter the chain and different groups of dillali are active in bringing buyers and sellers together up to the stage when the food crops are purchased by the urban wholesaler. As a powerful bargainer he also acts as agent for contract

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1. Dillali is a Hausa word of Arabic origin signifying a formally recognised intermediary between buyer and seller who conducts the actual process of sale in the market in return for a commission - la'ada.



traders and institutional consumers and obtains commission from both the farmer-producer and trader. His hold on the market is quite strong so that in some cases, as at Abuja, he requires a licence issued by the Local Authority. Many middlemen are involved in the transactions and as many as ten middlemen may handle the food crops at one stage or the other from the time it leaves the farmers' farm till it is purchased by primary wholesalers or contract traders who in turn take the crops to the main consuming centres of the forest and Sudan zones.

A recent development in the marketing of food crops is the growth in the number of immigrant traders who organise the purchase and transport of food crops to the Forest and Sudan zones of the country. Of the 57 registered yam and grain traders in Abuja Emirate in 1969, there were 28 from Western Nigeria, 21 from Northern Nigeria and 8 indigenes of Abuja Emirate. The immigrant traders are actively involved in promoting trade between our part of the Middle Belt and the rest of the country. They work as itinerant traders, collecting produce from the villages and markets and then sell to traders who come from other parts of the country or arrange to transport the produce directly to the consuming centres.

In many cases, immigrant traders are also responsible for organising transport for the evacuation of farm produce, for trade in manufactured materials such as clothing, household goods and building materials which are brought from overseas and the forest and Sudan zones of the country. Indigenous traders are however gradually taking part in the trading activities and this is particularly the case in the Jima/Doko/Katcha farming zone where many Nupe men and women are active in trade.



In performing the role of the middleman, the trader invariably adds to the cost of the produce to the consumer at every stage of the chain of distribution. It can be seen from Table 27 that middlemen's margin account for an average of 15% of the cost of guinea corn to the consumer, about 20% of the cost of yams and over 25% of the cost of rice to the consumer. In most of the food crops produced farmers' income is less than 50% of its cost to the consumer while transport cost and middlemen's margin account for over 50% of its cost to the consumer.

Apart from the large number of intermediaries in food crop marketing, some of the actions of the middlemen often lead to artificial shortages and price increases to the consumer. Before the Nigerian Civil War, it was the usual practice of Ibo traders to buy hundreds of tons of yams from Abuja and Minna areas and rice at very low prices from Bida area during the harvest season and transport them through Katch on river Niger to Onitsha, while others were transported to Kano where they were stored. Onyemelukwe (1970: 170) noted that "the most highly valued variety" of rice at Onitsha market was "the tiny, spindle-shaped rice (BG 79) from Niger Province known in Onitsha market as 'wuli-wuli Minna'". He also noted that a lot of yam supplies at Onitsha market come from the Middle Belt. The yam and rice thus brought from the study area are hoarded at Onitsha market till prices have risen and are thereafter exported to Lagos, Ibadan and other consuming centres of the forest zone so that most of the rice often assumed to originate from Onitsha area actually originates from Bida area.

This action of middlemen, to say the least, is disadvantageous to



both the farmer-producer and consumers. In the first place, farmers receive very low prices. Secondly, the distance over which the food crops are transported through a circuitous route to the consuming centres of Western Nigeria and Lagos are unnecessarily increased by over 200 miles thereby increasing the transport costs which are invariably passed on to both the farmer and the consumer. In the third place, artificial scarcities are introduced leading to high prices to the consumer.

The role of the middlemen in organising food crop marketing and opening up markets for Middle Belt produce as well as the need for a margin to pay for their services are recognised. It is also recognised that the large number of middlemen involved may make food crop marketing fairly competitive, but it appears that a substantial part of farmers' potential income and consumer price increases are absorbed by the high cost of marketing and distribution, so that the farmer-producer does not derive much benefit from price increases. The disadvantageous position of the farmer with regard to middlemen's activities in the domestic marketing of palm oil in Nigeria has been shown by Essang (1968) and it is felt that a deliberate policy to improve marketing arrangements by reducing the chain of middlemen in food crop marketing in our part of the Middle Belt is essential, if the rural economic development of the area is to be accelerated.

#### THE PROBLEMS OF MARKETING FOOD CROPS

We stated earlier in this chapter that apart from the shortage of human resources to develop the potentialities of the Middle Belt, the poor facilities for the transportation and marketing of food crops



probably constitute the most formidable problem of rural economic development in the area. In spite of the existence of local markets and surplus food crop production, the marketing of food crops face a number of problems which constitute impediments to an orderly and timely flow of commodities to the urban and densely populated areas of the forest and Sudan zones. Even though some of the problems are being solved as a result of improved transportation, rising demand and prices for food crops, other problems nevertheless remain and continue to affect the rural economy of the study area. Apart from the problems of transportation and distribution of food crops, a number of problems can be identified.

#### 1. Lack of Steady Demand for Food Crops

A major problem facing food crop marketing in the study area is lack of steady demand and a reasonably assured market for the farmer's product. While food crop production faces this problem in Nigeria as a whole, the Middle Belt suffers particularly from the locational disadvantage of being distant from the main consuming centres. Export crop marketing is well organised and has guaranteed markets through Marketing Board Agents, but the marketing of food crops is poorly organised and is typified by small-scale units which lack the necessary capital, technical knowledge and managerial experience to create larger and more efficient units of operation.

The low levels of income, urbanization and industrialization as well as lack of areal product specialisation in Nigerian agriculture do not provide conditions essential to smooth flow of food crops from the sparsely populated Middle Belt to the more populous areas in Nigeria. In many cases, the farmer could not sell all his food crops while those sold are usually.



at low prices as a result of lack of steady and sustained demand for the farm produce as well as a result of high transportation costs to the consuming centres of the forest and Sudan zones.

The root crops produced in the study area such as yams, cassava and sweet potato could be produced in the forest zone while the grain crops such as rice, guinea-corn and millet are produced in the Sudan zone. In years when cash crop prices are low, food production in the forest and Sudan zones are stepped up with consequent fall in demand for food crops produced in the study area. Following the fall in cocoa prices paid to farmers in Western Nigeria in 1965 and 1966, the production of food crops was increased in Western Nigeria with the result that demand for Abuja yams (which main market is in Western Nigeria) fell and average price of yam at Abuja fell from £11.13/- per ton in June 1964 to £8.11/- per ton in June 1967 (27% fall in price). At Yebu in Kwali District many farmers could not sell their yams at all and these were left to rot away.

An example of the effect of demand on food crop production may be seen in rice production. Demand for rice rose during the second World War and farmers in Bida Division responded by expanding production so that by 1942, 2,000 tons were purchased for the army in Bida area (Lines, G.W. 1945). By about 1945 however, the demand for rice fell and many farmers had to cut back on rice production.<sup>1</sup> This situation continued until the late 1950s when rising population, urbanization and urban income in Nigeria led to increased demand for rice and farmers' correspondingly expanded its production. The greater development of marketing facilities and sustained demand from Western Nigeria for vegetables -

1. Oral evidence from farmers during field survey.



onions, red pepper, tomato and okro, produced in the Jima/Doko-Katcha farming zone is also reflected in the large quantities of such crops produced and exported to Western Nigeria.

Uncertainty as to the price and possibility of sale of food crops has been a major constraint to expansion of production of food crops among farmers in the study area. Not only were farmers unable to estimate what prices their crops would fetch in the market, they were also not sure of securing markets for such crops. This situation is however changing gradually following rising population and increased urbanization in Nigeria which has led to increased and sustained demand for food crops.

## 2. Problems of Food Crop Storage and Processing

The need for efficient storage and food crops processing, particularly in an area where poor transportation increases the risks of food crop marketing, cannot be over-emphasized. In this regard, it has been claimed that over 10% in value terms, of available food supply is lost each year in Nigeria as a result of poor storage and processing (Nigeria: 1970). In addition, if the farmer is to benefit from the seasonal price fluctuations, a more efficient system of crop storage and processing is essential. The existing systems of processing and storing grain and root crops in the study area lead to wastes through insect attacks and rotting as well as to low quality of food crops offered for sale.

In the study area, yam is stored in mounds covered with leaves to protect them from the direct rays of the sun. This method is not as efficient as the storing of yam on stakes in the forest zone described by Morgan (1959). Even though the leaves protect the yam from the direct



rays of the sun, it does not protect it from insect attack while the yams quickly get rotten as a result of lack of free movement of air.

Four main methods are used for storing grains in the study area. The most common one is the rhumbus which is built of mud walls, flask-shaped with small cylindrical apertures and covered with thatched roofs. The rhumbus is well polished within and is often built within the compound around houses. In many cases grains are stored in them for over a year. The second method is the use of temporary bins usually erected on the farm and raised on poles. The poles are covered with mats on which the grains are stored and then covered with ganna mats. This is often a temporary type of storage and it is disused as soon as the grains are removed into the rhumbus in the compound. The third method is by hanging the unthreshed grains on the roof of the house thus preserving the grains from likely insect attack. Such grains are usually the seed grains for subsequent sowing. The fourth method is the storing of rice paddy in large bags before they are parboiled.

Yams and grains stored under the present systems are open to insect attacks while yams are affected by rot. Investigations by the F.A.O. in Western Nigeria for example show that storage losses on yams average 20-25% over a period of 27 weeks. Guinea corn stored in bins and rhumbus are also liable to attack by such insects as Sitotroga Cerealella and T. Castaneum. The use of insecticides such as lindale has to some extent reduced insect attacks on grains though no solution has been found to the rotting of yams. It may be noted here, however, that one of the contributory reasons to the expansion of rice production in the study area is the



possibility of storing both paddy and processed rice for a long time without fear of insect attack or deterioration in quality.

The processing of grains, particularly threshing is still a very laborous undertaking for the farmer and his household. Guinea corn and rice are often beaten on the uncemented floor while millet is beaten by mortar. These methods of processing are as time consuming as they are wasteful while sand gets mixed up with the grains on the floor thereby leading to lower quality grains. Existing methods of processing yams into flour do not produce marketable flour all over the country. In the case of rice, many farmers especially in the Mokuwa/Pandogari and Diko/Paiko farming zones still use the mortar to remove the husks as rice mills are few and far between. In the Jima/Doko/Katcha farming zone, rice mills are increasing though not yet sufficiently to cope with the increasing production of rice. The practice by farmers of mixing rice grains of different varieties e.g. mixing up of Mas 2401 and BG 79 and the crude parboiling methods often lead to broken grains and incomplete removal of husks when processed in the mills. These have the effect of lowering the quality of the finished product and consequent low prices to farmers.

#### Restrictive Practices by Local Authorities

In chapter 6 we referred to the higher rate of taxation to which cash crop farmers are subjected as well as special levies which traders in cash crops are made to pay by the Local Authorities. We observed then that this is one of the reasons why cash crop production and marketing have not been well developed in the study area. The possibility of



the study area and the Middle Belt as a whole, specialising in the growing of food crops for cash assumes the existence of an unrestricted market. Unfortunately, the Local Authorities in the study area, in accordance with a long tradition of husbanding stocks of food crops, from time to time make regulations restricting and even banning the export of food crops to other parts of Nigeria. Such regulations are often made and enforceable between March and July each year when the prices of food crops are at their highest in other parts of Nigeria. For example, as a result of the rise in the prices of food crops between December 1968 and March 1969 when the prices of guinea corn and rice rose from 4d per mu to 7d per mu and from 10d per mu to 1/3 per mu respectively at Bida, the Bida Local Authority made an Order on 11th April, 1969 banning the export of food crops from its area of jurisdiction to other parts of the country. The Order affected not only food crops produced in its area of jurisdiction but also food crops from neighbouring Local Authority areas as both the overland and river routes to Western Nigeria pass through Bida Local Authority's area of jurisdiction. Within a fortnight, the other Local Authorities in the study area passed similar Orders and as the protests lodged by local traders were to no avail, they had to resort to the smuggling of food crops out of the area.

The objectives of such parochial orders are to ensure that food supplies are adequate and prices kept low within the producing area. The sum total effects are however to reduce farmer-producers' income, limit his production expansion and lead to shortages in other parts of Nigeria. In this connection, Baldwin (1957: 196) has observed that



this parochial attitude of the Local Authorities is incompatible with economic development as the limitation of markets limit production.

#### Uniqueness of Food Crop Marketing Problems

It may be asked whether the problems discussed in connection with the marketing of food crops are unique to the study area or the Middle Belt within Nigeria. No attempt has been made in this study to show that the problems discussed are peculiar to the study area alone and not of general application to other parts of Nigeria. Much has been written about the problems of food crop marketing in Nigeria and the recent steep rise in food prices has added a new dimension to the discussion of the problems.

The focus of this study has however been on the study area in particular and the Middle Belt in general. The problems of food crop marketing is felt to be of special importance in the study area for a number of reasons.

In the first place, the economy of the study area is predominantly based on the production of food crops for the internal exchange economy within Nigeria. Any problems confronting food crop marketing are bound to have more far-reaching effects on its economy than on the economy of other areas which are based on both export and food crops with growing urbanization and secondary economic activities.

Secondly, the study area has the local disadvantage of being far from the main consuming centres of its products. The efficiency and promptness at which the food crops arrive at the consuming centres are



of much concern to the farmer in the study area than to the farmer whose food crops, as those within the Kano Close-Settled zone or within Ibadan area, are sold within a few miles of his farm.

Thirdly, the potentialities of the study area in specialising in food crop production for the rising population and urbanized areas of Nigeria, are not yet fully developed and it is felt that a full development awaits the effective solution of both the problems of shortage of human resources and marketing of food crops produced in the area. A meaningful study of the problems confronting the main source of income of the population of the study area is of unique importance if the process of rural economic development in the study area is to be fully understood.

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1. Information given on agriculture by the Federal Office of Statistics, the Nigerian Nigeria Statistical Yearbook and the State Provincial Agricultural Stock-taking are generalized information given on a general basis thereby limiting the basis of local comparison. It is however hoped that the State Agricultural Analysis and Survey of food crop production currently being undertaken by Divisional Officers of the Ministry of Natural Resources will produce valuable information in the future.



CHAPTER EIGHT

NEW TRENDS IN AGRICULTURAL PRODUCTION

As rural economic development is a continuing process embodying changes in socio-economic organisations and factor combinations in production, as well as the re-orientation of rural production from subsistence to commercialised agriculture, it is essential that we identify those changes which make for fuller and more rational use of the agricultural resources. The changes are seen as improving the efficiency of agriculture and raising the level of income of the agricultural population. We have already discussed the changes taking place in the socio-economic organisation of the agricultural population, and have noted that as agricultural production for the market is on the increase in the study area, the gandu farming unit is invariably subjected to tensions leading to its break-up and replacement by the ivali farming unit.

With regard to agricultural production there are limitations in measuring the degree of changes that have taken place through time in view of the absence of previous studies in the area giving basic information on land use, level of production, crop yields, marketing farmer's income etc.<sup>1</sup> In addition, food crop production figures (which form the bulk of

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1. Information given on agriculture by the Federal Office of Statistics, the Northern Nigeria Statistical Yearbooks and the Niger Provincial Agricultural Stock-taking are generalised information given on Provincial basis thereby limiting the basis of local comparison. It is however hoped that the Crop Demonstration Analysis and survey of food crop production currently being undertaken by Divisional Officers of the Ministry of Natural Resources will produce valuable information in the future.



agricultural production in the study area) are not recorded every year as is the case with export crop production figures given by the Marketing Board. In spite of the limitations imposed by lack of previous studies and production statistics many fundamental changes have been observed in the field on commercialisation of agriculture, land use and techniques of crop production, types of crops grown and animal husbandry.

#### Increasing Commercialisation of Agriculture

A noteworthy trend in agriculture in the area is its increasing commercialisation, with more and more of the products oriented to a market economy. Three main factors have contributed to this increasing commercialisation of agriculture and these are: (i) sustained increase in demand for food crops resulting from the rising population and urbanization in Nigeria; (ii) increasing monetisation of the Nigerian economy and greater cash needs of the farmer which are no longer limited to tax and brides' price payments; and (iii) the increasing integration of the Nigerian economy which has led to a greater development of the internal exchange economy in Nigeria.

Perhaps the most important thing that has happened to the Middle Belt economy is the sustained increased demand from other parts of Nigeria for food crops produced in the Middle Belt. The rise in demand became noticeable in the early 1960's following rising population, industrialisation and urbanization in Nigeria. A further impetus was added to this demand by the Nigerian Crisis and Civil War which led to large-scale movement of populations to urban centres in the newly-created States and to the various war fronts.



We noted in the previous chapter that the increased demand for food crops from other parts of Nigeria led to price rises of food crops in the study area and this encouraged the farmer to increase his level of production. This increase in the level of production is borne out by Table 30 which shows the increase in average farm acreage cultivated per farming unit between 1963/64 and 1968/69 cropping seasons. The percentage increases in average acreage cultivated within the five years vary between 18.3% at Katcha and 34.7% at Mokwa. The increase in production was not only in

**TABLE 30: INCREASE IN AVERAGE SIZE OF FARMS PER FARMING UNIT 1963/64 AND 1968/69 (IN ACRES)**

Year	Mokwa	Pandogari	Diko	Paiko	Jima/Doko	Katcha
1963/64	7.2	7.6	6.5	8.5	6.5	6.0
1968/69	9.7	9.8	8.5	11.0	7.9	7.1
Percentage increase	34.7	29.0	30.7	29.4	21.5	18.3

Source: Field survey questionnaire analysis.

acreage cultivated but also in the intensity of land use as discussed in the next section. The increase in acreage cultivated is particularly marked in the Mokwa/Pandogari and Diko/Paiko farming zones where upland cultivation forms a greater percentage of the farms and where marketing facilities for food crops were gradually improving. Farmers in the Jima/Doko/Katcha farming zone based their expansion of production on increased fadama and irrigation cultivation as well as on the use of fertilizers leading to increased intensity of land use.



As the opportunities for selling food crops increased, the farmer was also developing new monetary needs as a result of the increasing monetization of the Nigerian economy. We noted earlier that such activities as house-building and gaya work on the farm which used to be communal work are now paid for in cash in form of wages for house-builders and farm labourers. Bride-price is also increasingly being paid in cash in place of farm-labour and farm produce. The farmer's demand for imported goods such as bicycles, radio, iron-roofing sheets, motorcycles, corn and rice mills, and the development of new needs such as the need for the payment of children's school fees and the performance of holy pilgrimage to Mecca by moslems further increased cash requirements. In consequence, the farmer has to increase the level of his crop production for the market as his cash requirements are no longer limited to the payment of tax and bride-price which, observed Mitchell, used to be the main cause of the central African farmers' desire to grow cash crops or to take up wage labour (Mitchell, J.G., 1961: 200).

Table 31 shows the estimated percentage of the farmers' total food crop production for the market, while Table 32 shows the estimated quantity of farm crops exported to other parts of Nigeria. An examination of the Tables show the following. The percentage of total crop production for the market is quite high ranging between 55 and 75% of total food crop produced while production for the market rose from a maximum of 55% in 1964/65 to 75% in 1968/69. The food crops which are increasingly grown for cash are rice, yam, guinea corn, millet, onion, red pepper and calabash. In addition to these food crops, sylvan produce such as locust



bean is gathered and marketed in large quantities and also shea nuts are collected for sale to trading firms (in 1968/69, 3028 tons of shea nuts were sold to trading firms).

**TABLE 31: ESTIMATED PERCENTAGE OF FARMERS' TOTAL FOOD CROP PRODUCTION FOR THE MARKET 1963/64 AND 1968/69 CROP SEASONS**

Districts	Mekwa		Pandogari		Diko		Paiko		Jima/Doko		Katcha	
	a	b	a	b	a	b	a	b	a	b	a	b
Rice	*	40	*	10	*	15	*	10	55	85	60	90
Yam	40	60	50	60	60	80	60	75	15	*	10	*
Guinea corn	60	70	50	65	50	60	40	55	30	15	35	10
Millet	40	70	40	50	40	60	35	60	*	*	*	*
Beans and Cowpeas	*	40	10	40	25	30	*	25	20	50	30	60
Onion	*	50	*	15*	*	25*	*	10*	60	85	70	90
Water Melon	20	50	*	*	*	*	*	*	40	70	50	75
Red Pepper	*	20*	*	*	*	*	*	*	70	90	70	80
Total crop production for the market	45	60	45	58	45	60	35	55	50	72	55	75

a. 1963/64.

b. 1968/69.

\* Crops grown on a small scale and mainly for household consumption.

Source: Questionnaire Analysis.

A greater percentage of crops produced in the Jima/Katcha/Doko farming zone (except guinea corn and millet which are grown on a lesser scale) are produced for the market than in either of the other two farming zones and



**TABLE 32: CROP PRODUCTION FOR MARKETING (SHOWING MAIN PRODUCING/  
MARKETING CENTRES AND ESTIMATED 'EXPORT' FROM THE STUDY  
AREA IN 1968/69 CROPPING SEASON)**

Crop	Main Producing/ Marketing Centres	Peak 'export' periods	Estimated quantity in tons
Rice	Badeggi, Bida, Doko, Minna, Muregi, Edozhigi, Katcha,	December to May	23,750
Yam	Abuja, Bosso, Bwari, Gwagwalada, Kuta, Minna, Paiko, Pandogari,	November to May	18,760
Guinea Corn	Diko, Lapai, Minna, Mokwa, Paiko, Pandogari.	December to May	6,760
Millet	As for guinea corn	December to May	5,800
Beans	Bida, Katcha, Minna, Mokwa.	October to January	5,420
Onion	Badeggi, Bida, Doko, Katcha, Kutigi,	January to May	480
Melon	Badeggi, Katcha, Minna.	September to December	230
Red Pepper	Badeggi, Bida, Doko, Katcha, Lemu.	November to April	24
Calabash	Diko, Gwagwalada, Katcha, Lapai, Minna.	November to February	*
Shea-nut	Abuja, Bida, Badeggi, Katcha, Minna, Mokwa.	July to February	3,028*

(Cont'd.)



TABLE 32 (Cont'd.)

Crop	Main Producing/ Marketing Centres	Peak 'export' periods	Estimated quantity in tons
Cotton	Abuja, Diko, Gwagwalada, Lemu, Mokwa, Paiko, Pandogari, Teginu.	January to April	616***
Groundnut	Bida, Mokwa, Paiko, Pandogari.	October to December	237***
Soyabeans	Abuja	December to March	330
Benniseed	Abuja	August to December	111

1. Indicate quantity of crops 'exported' to the urban centres of the forest and Sudan zones.

\* This is not easily computed in tons. However, 10 wagons of 20 tons capacity transported calabash from Katcha and Minna between November 1968 and February 1969.

\*\* Figures for 1968 obtained from 9 trading companies who trade in sheanuts in the study area. (In 1969 sheanut became a Marketing Board crop).

\*\*\* Marketing Board crop records obtained from Local Authorities.

Source: Data obtained from (1) Nigerian Railway Station Masters at Katcha, Badeggi, Mokwa and Commercial Officer at Minna.

(2) Vehicle counts and estimated tonnage at the producing/marketing centres in co-operation with the field staff of the Ministry of Natural Resources.

(3) River transport estimates at Katcha in co-operation with the Sangawa (head of sailors).



this is a result of the greater development of marketing and transportation facilities in the zone. In Pandogari, Diko and Pailo Districts only three crops - yam, guinea corn and millet are grown in large quantities for sale with the percentage produced for the market ranging between 50 and 80% in 1968/69. The production of vegetables such as okro, onion, red pepper and tomato for the market, which require quick marketing and which brings in about 15% of farmers' cash return from farming in Jima/Doko/Katcha farming zone, is substantially absent in the three Districts. These reflect the higher cost of transportation and less developed marketing organisation as a result of the dispersed nature of settlements and sparse population discussed in Chapter 3. On the other hand, Mokuwa, which has the least population density per square mile (15), has its population concentrated on the main Jebba-Kaduna rail and road and on the Bokani-Bida road, so that marketing organisation is more developed than in the other sparsely populated Districts. In all the case study Districts, however, crop production for the market is more than half of farmers' total crop production and this is particularly marked at Jima/Doko and Katcha Districts where crop production for the market are about 72% and 75% of total farm production respectively.

The main producing and marketing centres for food crops are found in the more densely populated Districts of Katcha, Jima/Doko, and the main population concentration and transportation centres such as Bida, Minna, Abuja and Gwagwalada. On the other hand, the sparsely populated areas such as Alawa, Kuseriki, Gnam and Lapai suffer from high transportation costs and poorly developed marketing facilities. The poor marketing and



transportation facilities are responsible for the lower prices for food crops received by farmers in the sparsely populated Districts and this is further discussed in the next chapter.

It may be expected that the locational disadvantage of the Middle Belt farmer would not enable him to compete with his counterpart in the Forest and Sudan zones where the ~~consuming~~ centres for his farm products are located. Assuming that food crop prices, yields and production costs are constant except the cost of transporting the products to the market, and if transportation costs increase linearly as distance to the market increases, then the effect will be that the price received by the Middle Belt farmer declines with distance from the marketing centre. Increasing production from farmers at the marketing centre and linear decline of prices (rent) with distance from the market as well as damages resulting from delays and rotting would place the Middle Belt farmer at the 'extensive margin of production' where production becomes less profitable.

While this model provides an idealised possibility, many factors limit its application in real life situations. In the first place, the price-distance (rent-distance) relationship need not be linear, as transportation rates per unit-distance often decline as the distance increases. For example, it costs 4/- to transport one bag of guinea corn (100 mudas) from Paiko to Minna (16 miles) while to transport the same bag from Minna to Kaduna by rail (110 miles) costs 16/-. These give 30d. per ton-mile for the short distance and 17d. per ton-mile for the long distance. This is in conformity with Dunn's (1954) observation that transport rates per distance often decline as the distance increases thereby reducing the



impact of transportation costs on the price paid to the Middle Belt farmer.

Secondly, as the Middle Belt food crops are usually in great demand during periods when locally produced food crops are in short supply in the Forest and Sudan zones, the 'effective' price paid to the Middle Belt farmer enables him to compete at the marketing centre. For example, 'Abuja yams' are in great demand in Western Nigeria between February and July each year when locally grown yams are in short supply, and so yams from the Middle Belt fetch high prices rising from an average of £32 to £40 per ton between February and July 1969 at Ibadan.

In the third place, product-specialisation and crop varieties confer a measure of marketing advantage on the Middle Belt farmer. For example, farmers in the Forest and Sudan zones increasingly specialise in export crop production and rely on food crops produced in the Middle Belt (United Nations, 1954: 32). In addition, consumers in Southern Nigeria have special preference for the varieties of rice produced in the study area - BG 79 and MAS 2401 so that "in December 1965, when other varieties of rice were sold at 3/4d. per cigar (cigarette) cup, 'wuli-wuli' rice varieties (from Bida) was sold at 4/-3d. per cigar cup at Onitsha market" (Onyemelukwe, J.O.C., 1970: 170 & 289). It is thus clear that personal tastes of consumers affect the demand schedule and prices of food crops produced in the study area.

Even though the Middle Belt farmer still suffers from locational disadvantage as compared with his counterpart in the Forest and Sudan zones, the increasing integration of the Nigerian economy leading to a greater



development of the internal exchange economy of the country enables the farmer to secure markets for his products and consequently to increase the level of production and commercialisation of his agriculture.

### Rising Level of Income

Closely connected with increasing commercialisation of agriculture is the rising level of income in the study area. The level of income could be used as a measure of change from subsistence to commercialised agriculture and also as a measure of the level of rural economic development. An estimation of the farmers' income from the sale of farm crops, livestock and off-farm (secondary occupations) sources was made and the average for the case study Districts are given in Table 33. An examination

TABLE 33: AVERAGE INCOME PER HOUSEHOLD (£)

District	Net Farm Income <sup>a</sup>	Income From Livestock <sup>b</sup>	Off-farm Income <sup>c</sup>	Total Income	% Derived From Farm Crops
Mokwa	61.3	6.2	8.5	76.0	80.7%
Pandegari	54.5	5.5	3.0	63.0	86.5%
Diko	68.2	10.6	9.6	88.4	77.1%
Paiko	62.8	6.5	4.2	73.5	85.4%
Jima/Doko	86.5	7.0	19.6	113.1	76.5%
Katcha	92.4	8.5	22.5	123.4	74.9%
Sample	71.1	7.4	11.3	89.8	79.2%

a. This excludes the value of crops consumed in the household.

b. This is income derived from poultry, pigs, sheep and goats.

c. This is income derived mainly from trade and craftwork.

Source: Field survey questionnaire Analysis.



of the table shows that the average income per household is £39.8 per year with 79.2% of this derived from farm sources. This level of income is higher than the £60 per household estimated for Niger Province in 1965 (Nigeria: 1966: 31). It is also higher than the average estimated level of income and expenditure of £62.9 per household in the Kano Close-Settled zone (Mortimore, M.J. & Wilson, J. 1965: 64-87). It is however lower than the average income per household at four Zaria villages estimated at about £100 with 78% of it derived from farm sources (Norman, D.W. 1972: 106 & 118). Within the case study Districts, the lowest average income (£63) was recorded at Pandogari and the highest (£123.4) was recorded at Katcha. The higher level of income at Katcha reflects the greater developments of agricultural commercialisation, intensity of land use, crop varieties and marketing facilities. It also reflects the opportunities for off-farm employment discussed in chapter four.

Even though the average income per household in the study area is lower than those of Zaria villages, the fact that average income has risen from £50 in 1965 to £39.8 in 1969 (49% increase in income) indicates that far reaching improvement in the rural economy are taking place, turning the Middle Belt from a lagging to a growing zone in the country. The growth in income also reflects the increases in the level of production for the market (Table 30 and 31) and the general rise in the prices of main food crops produced in the study area which has been discussed in Chapter Six.

The effects of the rising level of income can be observed all over



the study area with increases in the number of bicycles, autcycles, radio, iron roofing, corn and rice mills in use as well as the increase in the number of annual pilgrimages to Mecca noted in chapter three which rose from 122 in 1967 to 398 in 1969. In addition, new needs for the acquisition of manufactured products, payment of children's school fees etc. are being felt by the population all over the study area and these needs act as further impetus to increased rural production.

#### Increasing Intensity of Land-Use

The increase in rural production is reflected in the increasing intensity of land-use noticeable in every part of the study area. Of particular significance is the increase in acreage of land cultivated as a result of expansion of the scale of cultivation by indigenous farmers and immigration of farmers from the Sudan Zone. We noted in chapter 3 that many Hausa farmers and fishermen and Fulani herdsmen from the Sudan zone are settling in this part of the Middle Belt and in chapter 5 we also noted that many Hausa men who come as immigrant farm labourers often settle down having obtained farms of their own in the communal system of land tenure in the sparsely populated Districts. For example, of the total 914 tax payers in Kwangoma District (Pandogari) in 1958/59, only 65 were Hausa immigrants, but in 1968/69 the number of Hausa immigrants had risen to 185 out of the total 1,234 tax payers. In Jima/Doko and Paiko Districts many cattle Fulani graze their cattle throughout the year, thereby improving the fertility of the farmlands and making continuous cultivation possible. The Hausa immigrant farmers all over the study area increase the total farm acreage cultivated and make intensive use of the



fadama.

Another factor making for increasing intensity of land use is the use of fertiliser and continuous cultivation of farmlands, particularly in the Jima/Doko/Katcha farming zone. In this zone where continuous cultivation is especially marked, total fertiliser used in 1961 was 2 bags of superphosphates and 112 bags of sulphate of Ammonia. In 1968 the fertiliser used increased to 141 bags of superphosphate and 1064 bags of sulphate of Ammonia.<sup>1</sup> The application of 2 cwt. superphosphate per acre on fadama rice has brought about increased yield from an average of 1,250 lbs. rice paddy to 2,100 lbs. and 2,150 lbs. per acre at Doko and Katcha respectively. The success achieved in fertiliser application on rice now encourages farmers to use fertilisers especially sulphate of ammonia on guinea corn, millet and yams. Fertiliser use in the other case study Districts was minimal as the sparse population still allows extensive cultivation and the practice of rotational bush fallowing. Fertilisers are however gradually being used on upland and fadama rice and it is hoped that the success achieved on rice plots will encourage farmers to apply fertiliser on other food crops.

The Development of Small Scale Irrigation Schemes

The study area is traditionally considered as one of the riverain areas of Northern Nigeria and is fairly endowed with water resources such as Rivers Niger, Kaduna, Obako, Gurara, Musa, Ejiko, Kupanke and a number of smaller streams. As early as 1944, C.J. Rae drew attention to the

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1. Figures obtained from Ministry of Natural Resources, Bida.  
1 bag of the fertilisers weighs 56 lbs.



"immense possibilities" existing for the development of irrigation in the extensive fadama extending for many miles on the left banks of Niger and Kaduna rivers and along the valley of Gbako river which he conservatively estimated to extend to over 200,000 acres (Rae, C.J. 1944: 9-22). Subsequent surveys and reports continue to emphasize the potentialities for the development of irrigation in the area, and preliminary soil and land classification surveys by Balfour Beatty and NEDEC indicate that 600,000 acres of land are available for agricultural development either on an estate or peasant-farmer basis in the Niger flood plain between Jebba and Lokoja alone. Over half of this acreage is on the left bank of the Niger and of these only about 30,000 acres are cultivated at present.

In addition to the existence of extensive fadama and land suitable for irrigation development, Rae observed that the Nupe who inhabit the area "are water-minded" and "have shown a very encouraging understanding of the fundamental principles of the effective use of water for irrigation purposes" (Rae, C.J., 1944: 9). In many places the people have constructed, through laborious communal effort, small check dams and bunds, diverting small streams into the fields and have succeeded in irrigating surprisingly large areas. These minor schemes are naturally not up to design standards: they are liable to failure during heavy floods and do not provide for adequate water control. Nevertheless, they do indicate the increasing investments the Middle Belt farmer is making in order to raise the acreage and intensity of his cultivation as well as agricultural productivity. Farmers now invest their own time, effort and money in increasing their farm acreage under cultivation by draining river flood plains, building



irrigation chamels, dams and bunds, as well as by using shaduf to bring water to the uplands in the dry season. At present, hundreds of small irrigation schemes are found all over the study area devoted to the cultivation of rice, sugar cane, onions, tomatoes and other vegetables.

The reasons for the development of irrigation schemes particularly in the Jima/Doko/Katcha farming zone are not far fetched. We noted in chapter one that in a division of Nigeria into regions based on the relationship between the mean annual water surplus and the mean annual water deficiency, the water deficit of the Middle Belt exceeds surplus by nearly 500 mm. (Garnier, B.J. 1957: 354). The need to maximise cultivable land and spread farm work throughout the year through irrigation therefore underlies the development of irrigation schemes. In addition, farmers have realized that crop yields are higher on irrigated fields than on fields depending on rain water, and this is illustrated by Table 32 giving rice yields on different types of farmland. Even though fertiliser application was partly responsible for the higher yields on irrigated farms, the fact remains that the greater level of yields per acre justifies irrigation farming in the study area. Moreover, irrigation allows a greater variety of crops to be grown as can be seen in the Jima/Doko/Katcha farming zone where rice, onion, pepper, sugar cane and other vegetables are grown on a large scale.

Table 35 and Fig. 21 show the main irrigation schemes in the study area. It can be seen from Fig. 21 that nearly all the schemes are based on the tributaries of River Niger in the densely populated Districts, while Table 34 shows that of the total potential of 28,800 acres only 6,151 acres

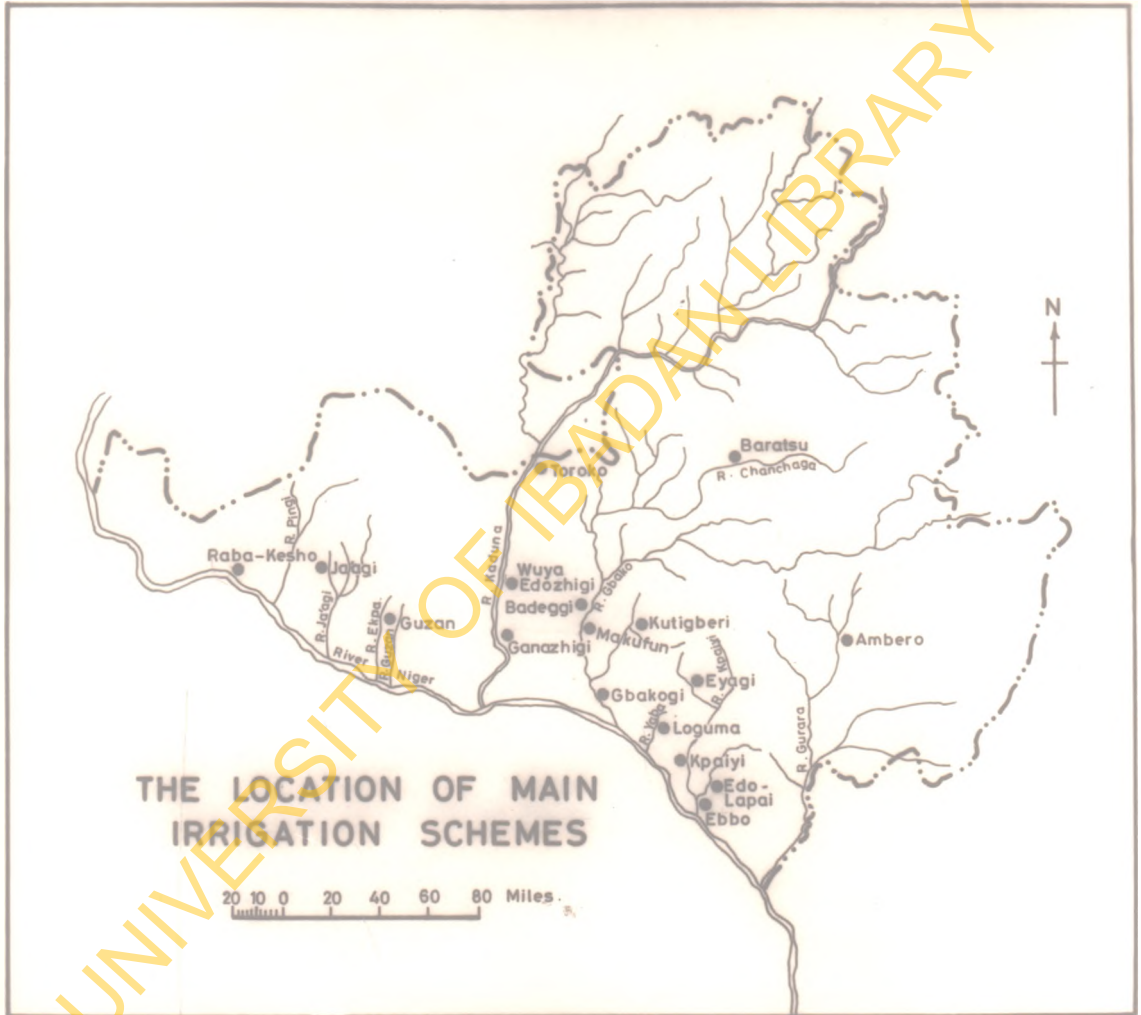


Fig 21



TABLE 34: PADDY RICE YIELDS ON DIFFERENT TYPES OF FARMS (LBS. PER ACRE)

Type of Farm	Mokwa	Pandogari	Diko	Paiko	Jima/Doko	Katcha
Upland	900	850	950	950	1260	1300
<u>Fadama</u>	1500	1200	1500	1250	2100	2150
Irrigated Farm	1850	*	1800	*	2750	2750
% Increase Upland vs. Irrigation	105.6	*	89.5	*	118.3	111.5

\* No irrigated farm was found in the District.

Source: Field survey in co-operation with the officials of the Ministry of Agriculture.

(24.4%) are cultivated at present while the maintenance of the existing schemes (including those claimed to be maintained by the Ministry of Agriculture and the Local Authorities for which farmers are charged £1.2/-6d. per acre) is mainly the responsibility of the local farmers.

While discussing cultivated fadama in the section on land-use earlier, we noted the contrast in the development of fadama cultivation and irrigation between the densely populated Nupe Districts and other parts of the study area, and observed that population pressure and lack of extensive uncultivated upland as in other parts of the study area might have been responsible for the development of fadama and irrigation in the 'Cis-Kaduna' Districts of Nupeland. We also note here that farmers in the sparsely populated Districts of the study area have initiated very few irrigation schemes, and that the little dry-season irrigation that takes place along

TABLE 35: MAIN IRRIGATION SCHEMES

Scheme	Year Opened	Potential Acreages	Cultivated Acreage 1968/69	Construction and Maintenance
1. Badeggi*	1955/56	2,600	1,572	M.O.A./L.A.*
2. Wuya-Edozhigi*	1956/57	3,000	1,804	" "
3. Loguma*	1958/59	400	245	" "
4. Torko	1958/59	200	80	Farmers
5. Edo-Lapai*	1961/62	80	80	M.O.A./L.A.*
6. Ganazhigi	No record	500	450	Farmers
7. Ja'agi	" "	400	300	"
8. Kpaiyi	" "	350	300	"
9. Makufun	" "	70	70	"
10. Ambero	" "	150	150	"
11. Kutigberi	" "	100	100	"
12. Baratsu	" "	100	100	"
13. Eyagi	" "	50	50	"
14. Rabba-Kesho**	1968/69	5,000	60	M.O.A.
15. Guzan	1968/69	2,600	140	"
16. Bakoji	No record	12,000	500	Farmers
17. Ebbo	" "	1,200	150	"
Total		28,800	6,151	

\* Schemes constructed by the Ministry of Agriculture but maintained and supervised by the Local Authority.

\*\* Rabba-Kesho Scheme was part of the defunct Niger Agricultural Project. It was discontinued in 1954 but a pilot scheme was started in 1968/69.

Source: Field Survey in co-operation with the officials of the Irrigation Division of the Ministry of Agriculture.



the valleys of the small streams is undertaken mainly by immigrant Hausa farmers from Sokoto, Zaria, Katsina and Kano. The flood plains of rivers Kaduna and Gurara in the sparsely populated Gwari Districts of Kuta and Kwali respectively are not developed for irrigation as intensively as are the flood plains of Ganazhigi and Ambero in Jima/Doko and Katcha Districts respectively. The numerous tributaries of the Niger in the sparsely populated Nupe District of Mokwa are also not developed for irrigation. The development of irrigation in the densely populated 'Cis-Kaduna' Districts may therefore be seen as a response to population pressure on the land and not necessarily as a cultural heritage of the Nupe tribe. It is to be expected therefore, that increasing population and sustained increased demand for food crops grown through irrigation as well as government investment will further development irrigation in this part of the Middle Belt.

#### Increasing Cultivation of Rice

Closely connected with the development of irrigation schemes is the increasing cultivation of rice, the introduction of which has been traced to about a century ago when the first crop was grown at Eshigi near the Kaduna river (Lines, G.W. 1943: 89). The first record of rice production in this area was made by Lord Lugard in 1904, when he observed that a considerable quantity of rice was produced in the swampy banks of the Niger, Kaduna and Benue rivers. The first official action to encourage rice production was taken in 1920 by Thornton, Superintendent of Agriculture, when he established two trial plots at Badeggi and Edozhigi. The seeds obtained from these trial plots were distributed to local farmers

and these efforts went on intermittently at the Badeggi Agricultural Station until February 1931 when the Badeggi Station was closed down on account of financial stringency (Minprof 75, Kaduna). However, before the closing down of the station, rice production had become an established industry among the Nupe, for the plentiful water supply and extensive fadama available provide ideal physical conditions for rice production (Grist, D.H. 1959: 11 and Agboola, S.A. 1962: 117-118).

The Second World War provided the incentive for large-scale production, which started about 1940 with government encouragement and local enthusiasm from farmers, when the slogan among the authorities was "every grain of rice, a bullet for a German" (Lines, G.W. 1943). Rice production was stepped up and in 1940, 700 tons of rice were sent to the Cameroons Plantations from Bida area; in 1941, 1,411 tons were bought of which 850 tons were sent to the Gambia and in 1942, 2,000 tons were purchased mainly for the Military. After the war, the demand for rice fell and farmers had to cut back on rice production. This situation continued until about the late 1950's when the increased importance of rice in the diet of the increasing population of the urban centres of the Forest and Sudan zones, particularly the former, stimulated a great demand for rice. This has resulted in the drawing away of farmers from traditional food-crop production to commercialised rice production all over the study area, so that rice production now "occupies a position of importance closely rivalling that of export crop production in other parts of Nigeria" (Agboola, S.A. 1962: 108).

Sustained demand for rice in the urban areas of Nigeria and the high



prices obtained from rice (which now stands at over £45 for rice yields obtained per acre) continue to encourage the expansion of its production. Rice production has spread to other parts of the study area and even to upland Gwari areas where rice was formerly regarded as a "Nupe crop". The expansion of production further stimulates the development of irrigation projects and intensive cultivation of fadama. In addition to sustained demand and high prices, the activities of the Federal Rice Research Station at Badeggi (Hardcastle, J.E.Y. 1959) and the Extension Division of the Ministry of Agriculture have further stimulated increased production through the introduction of high-yielding varieties - BG 79 and MAS 2401, and fertilisers which give farmers over 2,000 lbs. paddy rice per acre. In view of the profitability of rice production, farmers are now prepared to pay for improved seeds, water rates in irrigation schemes (e.g. £3,722:7/- was realised on the Wuya-Edozhigi and Badeggi Schemes in 1968/69) and the application of fertilisers. The use of fertilisers is also extended to other crops as a result of success achieved by farmers in fertiliser application to rice. The increase in demand, rise in prices, good extension work and high population density observed as the favourable factors of change to cotton production in Gombe Emirate (Tiffen, M. 1971: 22) are also found at work in the study area, particularly in the Jima/Doko/Katcha farming zone.

We earlier estimated export of rice during the marketing season from the main producing/marketing centres to be 23,154 tons but as rice export is not limited to the seven main marketing centres, total production from the study area is estimated to be over 50,000 tons. Of these about 35,000

tons and 10,000 tons are exported to the Forest and Sudan zones respectively while about 5,000 tons are consumed locally. Among the many benefits derived from rice production in the study area has been the provision of employment and income for many - as farmers, landowners, mill-owners and workers, traders and transporters.

#### Economic Aspects of Rice Production

A noteworthy aspect of rice production in the study area is the capitalist organisation of its production and marketing, particularly in the Jima/Doko/Katcha farming zone. Land owners and members of the ruling class, Local Authority and government officials, traders and Mallams invest large sums of money in rice production by constructing small-scale irrigation schemes, paying water rates to the Local Authority, buying fertilisers for farmers' use and offering credit facilities to farmers. These local financiers set farmers to work on rice farms on a share-crop basis - usually fifty per cent.

It is a matter of interest that this share-cropping system does not constitute a major disincentive to farmers' effort and good husbandry on the farm. In this connection it has been observed that the explanation appears to lie in the high value of the crop produced in terms of yield and cash returns (Angulu, U.A. 1965: 31). The farmer who cultivates a piece of land in a fadama or in an irrigated field, obtains not only the benefit of credit, fertiliser usage and commercial advice from the financier. In effect the farmer obtains a more reliable yield in both quantity and cash from a much less input of labour and personal cash investment. The high returns by the farmer and the success of the share-cropping system are



comparable to the situation in the irrigation projects in the Republic of Sudan where if "the yield is low, peasants are disinclined to come forward as tenants, though they may be forced to do so by economic circumstances; but where it is high both tenants and capitalists are pleased and there is steady pressure to increase the area under cultivation (Barbour, K.M. 1959: 245).

Another aspect of rice production in this part of the Middle Belt is its increasingly well-organised marketing arrangement. Many farmers now form marketing co-operatives in order to eliminate the chain of intermediaries between themselves and wholesalers from the Forest and Sudan zones. They pool their products and either sell directly to wholesalers from the consuming centres or else organise transportation of their rice crops for direct sale to wholesalers in Klorin, Ibadan, Lagos, Kaduna and Kano. Of the 73 rice-farmers interviewed in the Jima/Doko/Katcha farming zone, 21 (about 29%) have organised themselves into marketing co-operatives, thus eliminating the middlemen's margin. This development also increases the farmer's knowledge of the market and thus put him in a better bargaining position.

Exploitation of tenant-farmers, however, still exists with regard to rice marketing. In some cases, land-owners buy whole crops from tenant-farmers at very low prices during harvest and store the crops till the period of high prices. (It is not unusual for tenant-farmers to help their land-owners to store the produce and arrange transportation). In milling his rice, the tenant-farmer is also obliged to patronise the land-owner who invariably owns the rice mills.

In connection with the increasing production of rice in the study area, we should note the development of the rice-milling industry. In the 1968/69 cropping season, there were 79 rice mills in the Bida Local Authority area alone. This included the mill owned by the Bida Industries Ltd. at Badeggi with a registered share capital of £20,000. The mill provided full-time employment for 42 workers and had capacity for milling 15 tons of rice a day. The establishment of rice mills all over the study area has thus given rise to employment opportunities not only for mill workers but to others who are concerned with mill maintenance and repair.

The success achieved in increasing the production of rice in this part of the Middle Belt is an indication of the potentialities of the Middle Belt in acting as the 'granary' of Nigeria, as well as of the preparedness of the Middle Belt farmer to respond to the Nigerian market demand and to make profitability his basis of agricultural production.

#### The Development of Large Scale Estate and Peasant Farming

We earlier referred to the estimated potential acreage for the development of irrigated rice cultivation in the extensive fadama of the study area (Rae, C.J. 1944) and to the NEDECO survey on the possibilities of agricultural development in the Niger flood plain between Jebba and Lokoja, over half of which is on the left bank of the Niger. Preliminary soil and land classification maps prepared on the 1:100,000 scale show that 600,000 acres of land are available for agricultural development either on an estate or peasant farmer basis (NEDECO, 1961 Part 7, Vol. V). Crops such as sugar-cane, rice, jute for sack manufacture, millet, maize, cotton and soya beans could be grown. Subsequent developments which have taken



place particularly with regard to sugar production at Bacita and the expansion of peasant irrigation schemes all over the study area confirm the potentialities for the development of large scale estate and peasant farming in this part of the Middle Belt.

Nearly 10,000 acres of land have been developed by the Nigerian Sugar Company at Bacita (on the south bank of the Niger) where sugar production started in 1964-65. Sugar production in the estate in the 1969/70 season was about 25,000 tons of sugar. This now supplies 30% of Nigeria's domestic needs and saves Nigeria well over £1 million in foreign exchange (Nigerian Sugar Company, 1970: 2). Another sugar estate is being planned by the North-Western State Government near Baro or on the left bank of river Kaduna south of Wushishi where intensive fadama and upland soils suitable for sugar production could be developed. Numerous small scale irrigation projects have been developed by the Ministry of Agriculture, the Local Authority and by local peasant farmers, and the successes achieved so far as well as the development of agro-allied industries such as the sugar mill at Bacita, the paper mill at Jebba and numerous rice mills in different parts of the study area also indicate the possibilities of developing large scale estate and peasant farming as well as agro-allied industries in this part of the Middle Belt.

#### Livestock Production

Another noteworthy agricultural development taking place in this part of the Middle Belt is increased output of livestock products. With the gradual eradication of tsetse flies as a result of increased bush clearing for food crop production, the cattle population is increasing all over the

study area. This is particularly noticeable in the Jima/Doko/Katcha farming zone and in the Paiko District which are now major centres of cattle rearing. For example, Rinderpest Inoculation figures returned by the 'Joint Project 50' show that cattle population increased from 212,314 in 1963/64 to 412,958 in 1965/66 in the study area.<sup>1</sup> Many ~~Cow~~ Fulani have settled with their cattle, and cattle droppings play an important role in maintaining the fertility of the fields particularly those continuously cultivated in the Jima/Doko/Katcha farming zone. Many farmers now own cattle which they place under the care of the Fulani. Fresh milk is regularly collected and sent by rail to Kaduna for sale. The Cattle Ranch established at Mokwa in 1964 with German Technical Assistance has also successfully shown the possibilities existing for cattle fattening for sale in Southern Nigerian markets.<sup>2</sup>

The Minna Farm Ltd. (Piggery farm) owned jointly by the United Africa Company and the Northern Nigerian Development Corporation is also a successful commercial venture and has continued to increase its pig breeding and sales so that in 1969, it was able to send over 7,000 live pigs (each weighing over 220 lbs.) by rail to the Satis Meat Factory in Lagos.<sup>3</sup> Proceeds from the sale of goats, sheep and poultry also continue to make substantial contribution to rural income amounting to an average

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1. Information obtained from the Provincial Veterinary Officer, Minna.
  2. Based on "Mokwa Cattle Ranch" - Outline information on the Mokwa Cattle Ranch.
  3. Based on information obtained from Mr. Ward, the Manager of the Minna Farm Ltd.



of £7.4 per household in 1969. All these point to the potentialities existing for the development of livestock industries in this part of the Middle Belt.

From the discussion of the new trends in agricultural production, it appears that the prospects for the expansion of agricultural production with consequent rural economic development in our part of the Middle Belt are quite bright. The success of the Bacita Sugar Estate and the small scale irrigation schemes based on payment of water rates and share-cropping arrangements between peasant farmers and capitalist financiers in rice production indicate the possibilities of successful agricultural development projects based on a modified system of the Gezira Scheme (Arthur Gaitskell, 1959).

The increasing commercialisation and expansion of agricultural production show the willingness of farmers to respond to sustained demand and rising prices for food crops in Nigeria. The expansion of agricultural production has been enhanced by the increasing integration of the Nigerian economy and improvements in transportation and marketing arrangements for food crops. Sustained demand and rising prices for food crops continue to stimulate expansion of agricultural production with consequent increase in the level of income and rural economic development in the Middle Belt of Nigeria.

CHAPTER NINECONCLUSION AND IMPLICATIONS FOR RURAL ECONOMIC DEVELOPMENT.

The objective of this Study has been to examine the factors responsible for bringing about rural economic development in a part of the Middle Belt of Nigeria. The discussion has been undertaken within the context of "land surplus" model and the approach has been to regard population density and population growth as the independent variables, which in their turn are major factors determining rural economic development in the Middle Belt of Nigeria.

The Middle Belt as a distinctive zone with recognisable and possibly unique problems of rural economic development has been discussed and it has been shown that the lag in development as compared with the Forest and Sudan Zones of Nigeria has been due mainly to its existing population size. Certain endogenous and exogenous factors have been identified as being operative within the "land surplus" economy of the Middle Belt bringing about changes in the organisation of agricultural labour and land; in the intensity of land use, types of crops grown, level of agricultural commercialisation, and in the transportation and marketing of agricultural produce. These changes are seen as inducing growth in the economy and turning the Middle Belt from a lagging to a frontier zone.

Myint's warning about looking for a single theory to cover all underdeveloped countries ( Myint, H. 1964: 14 ) is very relevant in the case of the study area as the study has shown that the "labour surplus" theory has no relevance in explaining low rural economic development



in the Middle Belt of Nigeria. Rather than lead to "negligible, zero or negative" marginal productivity, rising population has been seen to lead to increasing intensity of land use and agricultural production. The low level of agricultural production has not been due to population pressure on limited natural resources or to the existence of under-employed labour but due to the small size of the population.

Recent increases and changes in agricultural production and the increasing commercialisation of agriculture has been due to a gradual rise in population as well as to the increasing integration of the Nigerian economy which has led to sustained demand for food crops produced in the Middle Belt.

This claim is supported by the intensive use of agricultural land in the Cis-Kaduna Districts where continuous cultivation is now the essential feature of agricultural land use and where small scale projects of irrigation are being developed to expand areal extent and length of cultivation of agricultural land. The immigration of Hausa farmers and Fulani herdsmen from the Sudan zone into the sparsely populated Districts of Kwangoma (Pandogari) and Paiko has led to increasing intensity of land use, the cultivation of fadama in the dry season, the introduction of new crops such as onion and rice and increase in the number of cattle reared in the Districts. In addition, the immigration of traders from the forest and sudan zones of Nigeria has led to a greater integration of the Middle Belt with the rest of the Nigerian economy by stimulating increased agricultural production through the development of trade and greater interaction between the

Middle Belt and other parts of the country. The effective demand for Middle Belt agricultural products has led to higher incomes (through rising prices and greater output) for farmers and this has a radiating effect on the rest of the economy especially as transport and marketing facilities for agricultural produce are improved. Increase in production as a result of rising prices for agricultural produce is also seen in other parts of Nigeria where substantial price increases for agricultural produce has enabled the farmer to increase production and incomes substantially (Norman, D. W. 1970).

In chapters four and five, it has been shown that the high density of population in the Cis-Kaduna Districts and rising population in other parts of the study area have led to changes both in the techniques and organisation of agricultural production and in social and economic relationships such as in the evolution of individual family ownership of farmland and the development of the individual family farming units (iyalaj) as opposed to the composite farming units (gandu) which was formerly the essential unit of agricultural production.

The breakdown of the traditional pattern of agricultural labour and land ownership point to the emergence of the Middle Belt as a zone of economic growth and social change. This is supported by the claim that the breakdown of traditional patterns of rural life facilitates rapid agricultural development (Johnston, B. P. and Mellow, J. W. 1961: 583). The changes which have been brought about by the growth in the population of the study area are also in support of the claims by Bosserup (1965 and Clark (1963) that the size and growth of population



are major factors in the determination of rural economic development.

The role of improved transportation and marketing facilities in promoting the rural economic development of the study area has been discussed. It has earlier been shown in the study how the development of rail and road transport induced changes in the settlement pattern and population distribution in the study area. The development of such centres as Minna, Badeggi, Katcha and Gwagwalada as transportation centres has changed the surrounding Districts into areas of population concentration, agricultural production and marketing. The construction of new roads in parts of the study area is also enhancing the expansion of agricultural production and promoting settlements in formerly remote areas.

Improving transport and marketing facilities have increased the spatial linkages between the study area and other zones of Nigeria and have thus stimulated increased agricultural production. The improved transport and marketing facilities in the country have led to the creation of effective demand for agricultural produce in the study area with consequent increased production, higher prices and increased income for farmers. The increasing production and commercialisation of agricultural commodities (aided by improved transport and marketing facilities) for sale outside the Middle Belt is one of the prime factors inducing economic growth; this phenomenon is also noticeable in different parts of the world, where involvement in the developing international or national economy has been the way by which regions and nations have accomplished economic development (North, D. C. 1964: 69-70). It can indeed

be claimed that the rural economic development that has recently been taking place in the Middle Belt of Nigeria owes much to the improvements in spatial linkages and marketing facilities resulting from the increasing integration of the Nigerian economy.

In spite of the new trends in agricultural production discussed in the study which show improvements in the agricultural economy of the study area, it should be recognised that there are still a number of problems and policy issues which should be resolved in order that the rural economic development taking place in the area should be accelerated. The existing small size of the population poses fundamental problems to rural economic development of this part of the Middle Belt. The present system of land tenure and poor development of transportation facilities also constitute other problems.

One may therefore ask what courses of action are essential for the promotion of rural economic development in the area. Does the promotion lie in improving the health facilities and encouraging higher birth rates among the indigenous population? With a vast potentially fertile agricultural land existing for development in the Middle Belt, and with the need for increased rural production and national integration in Nigeria, could the Belt be seen as an area providing opportunities for the settlement of people from other parts of Nigeria and opportunities for increased food crop production to feed the increasing population and urbanized areas of Nigeria? Does the solution lie in increased investment in agriculture such as in the establishment of large scale estates, settlement schemes, irri-



gation schemes, livestock projects and agricultural extension services? In view of the importance of transport facilities in the promotion of rural development, should investment be concentrated on improving transportation and marketing facilities? These are basic questions with wide dimensions bearing on regional planning and national development and they need to be examined more closely.

There is definitely a need for improvement in the health facilities in order to ensure steady increase in the population by reducing infant mortality. Natural increase in the population does not, however, depend only on reducing infant mortality but also on the alteration of long-established customs and institutions which lead to low fertility and birth rate particularly among the Nupe population. In any case, the solution to problems of rural economic development does not consist only in increasing the numerical size of the population but also in raising the productivity of the existing population. Improvement in the health facilities would therefore be one of the factors that could lead to growth in population size and increase in productivity.

It is felt that the promotion of settlement of people from other parts of Nigeria would lead to the achievement of three objectives:

(i) the areal expansion and intensification of agricultural production leading to rural development in the study area and expansion of agricultural output in the country; (ii) the promotion of trade within the Middle Belt and with other parts of Nigeria; and (iii) the relief of population pressure in the areas from which settlers are drawn such as,

for example, the densely populated areas of Sokoto, Katsina and Kano. This would lead to a re-distribution of population and national integration in Nigeria. There are, however, a number of problems to be faced in achieving these objectives. The opposition of the indigenous population to settling people from other parts of Nigeria has been noted in connection with the Niger Agricultural Project. It has also been shown that the present system of land tenure even though makes possible the settlement of immigrant farmers in certain Districts may limit the possibility of large-scale settlement of farmers from other parts of Nigeria as apparently 'vacant' land may not be available for development.

In order to encourage the settlement of people in the study area there is the need for reforms in the present system of land tenure. A system whereby occupancy of a farmland for about five years conferred ownership on any farmer should be evolved in the Cis-Kaduna Districts. In the sparsely populated districts, the present system whereby immigrant farmers are given farmland should be encouraged and security of tenure granted to such immigrant farmers and to their heirs. In addition, the existing legislative arrangement which empowers Local Authorities or State government to declare a piece of land a 'settlement area' thus enabling the Authority to develop and allocate the land to prospective farmers (this is the case with existing Local Authority and Government irrigation schemes) should be invoked and used as an instrument of policy to promote the settlement of people from other parts of Nigeria. The recent trends noticeable with regard to the immigration of farmers from the Sudan Zone, traders and artisans from the forest zone also need to



be encouraged.

Changes in the organisation of agricultural labour, in land use and crops grown as well as increasing commercialisation of agricultural production are major indicators of growth in the rural economy which need to be sustained. The change in the organisation of agricultural labour from composite (gandave) to individual family (iyalai) farming units is a result of the increasing impact of a monetary economy and as was noted earlier in the study, the smaller working units of the individual families (iyalai) give a comparatively larger measure of freedom of action for the younger generation of farmers who are enterprising and respond readily to new ideas and innovation. The structural changes in the rural productive organisation which had an earlier start in the Sudan and Forest Zones are evident in the Middle Belt and are leading to the acceleration of rural economic development of the Belt. The structural changes are to be further encouraged and made the essential feature of the unit of rural production.

Changes in patterns of land use and crops grown have been noted in the study and it has been shown that continuous cultivations is the rule in the densely populated Districts while immigration of farmers from the Sudan Zone into the sparsely populated Districts has led to a greater intensity of land use. The fadamas are intensively cultivated and are made to produce two crops of rice and other food crops a year. Small-scale irrigation projects are changing the techniques of production and aiding the intensive cultivation of food crops.

The increasing commercialisation of agriculture has led to the

increased production of crops such as rice, yam, guinea-corn, onion, pepper and other vegetables for which demand is increasing in the country. The production of these crops is complementary to the production of export crops in the Forest and Sudan Zones thereby enhancing the economic development of the country. The study has shown that the production of food crops need not be associated with a stagnant economy and economic underdevelopment nor with stagnant productivity. Export crop production does not have the monopoly of being the 'engine of growth' in the Nigerian economy as the rising income from food crop production in the study area compare favourably with income from export crop production in other parts of the country. In view of the rising income from food crops and its complementarity to export crop production in other parts of Nigeria, the present trend whereby the Middle Belt is specialising in the production of food crops should be encouraged and programmes to expand production embarked upon.

In this connection, there is the need for investments in agricultural projects such as irrigation schemes, estates for the production of sugar and jute, livestock and agro-allied industrial projects. These would not only lead to increased production but also to increased employment as well as to improved techniques of production. We have noted the successful establishment of the Bacita Sugar Estate, the development of small-scale irrigation schemes, the Minna Piggery Farm and the Nokwa Cattle Ranch which have contributed to increased production and employment in this part of the Middle Belt. We have also noted the possibilities for the expansion of irrigation projects and the establishment of estates for the production of sugar, jute and rice. Investments in



these projects are essential for the development of the study area as well as for the expansion of food crop production and raw materials for the growing population and industrial development in Nigeria.

The extension services of the Ministry of Natural Resources, which have promoted the use of high yielding varieties of rice - BC 79 and MAS 240 and the use of fertilizers on rice farms, need to be expanded and extended to other crops. Farmers also need to be organized into co-operatives to ensure efficient marketing of food crops and to provide credit schemes to enable them to put off sale of crops until prices are more favourable and guarantee them credit at planting time, the time of greatest need and lowest cash availability.

In order that investments in agricultural projects and farmers' co-operatives may succeed, there is the need for investments aimed at the improvement of transportation and marketing facilities. Even though the increasing integration of the Nigerian economy tends to reduce the locational disadvantage of the Middle Belt farmer, the high cost of transportation and the long chain of intermediaries between the farmer-producer and the consumer reduce the farmer's income. For the evacuation of farm produce from the farm and the village to the local marketing centres, the major means of transportation is head portage and as has been shown in this study, head portage is a very expensive means of transportation and severely restricts individual marketing operations by farmers and traders. The unorganized and poorly developed food crops marketing system has led to a long chain of intermediaries which at every stage of the process add a little margin to the marketing

cost with consequent reduction in the farmer's income and increase in price to the consumer. There is therefore the need for improvements in the transportation and marketing facilities for food crops in order to enhance the expansion of agricultural production. New feeder roads should be constructed and existing ones improved. Storage facilities should also be provided in order that the farmer may benefit from higher prices after harvest and ensure price stabilisation as well as prevent pre-harvest season shortages.

The increasing integration of the Nigerian economy and movements of people into the area are opening up and leading to a greater development of the potentialities of the Nigerian Middle Belt. These developments have turned the Belt from a lagging to a 'frontier zone' providing opportunities for settlement for people from other parts of Nigeria and opportunities for food crop production for feeding the increasing population and urbanized areas of Nigeria. Opportunities for the development of livestock industry and agro-allied industries also abound in the Belt.

The role which the State and Federal Governments can play in promoting settlement, organized food crop marketing and the development of transportation facilities cannot be over-emphasized. Those who are responsible for planning rural economic development in Nigeria should bear in mind the potentialities of the Middle Belt and constantly explore the possibilities of both the State and Federal Governments playing leading roles in promoting rural economic development in the Nigerian Middle Belt.



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APPENDIX I (a): AGE DISTRIBUTION: MOKWA

Age/Years	Male	Female	Total	%	Cumulative %	M/F Ratio
0 - 4	35	28	63	18.3	18.3	1,250
5 - 9	23	25	48	13.9	32.2	920
10 - 19	31	34	65	18.8	51.0	911
20 - 29	27	32	59	17.1	68.1	843
30 - 39	21	23	44	12.8	80.9	913
40 - 49	15	16	31	9.0	89.9	937
50 - 59	12	10	22	6.4	96.3	1,200
60 - 69	4	6	10	2.9	99.2	666
70+	-	3	3	0.8	100.0	666
Total	168	177	345	100.0		949

APPENDIX I (b): AGE DISTRIBUTION: PANDOGARI

Age/Years	Male	Female	Total	%	Cumulative %	M/F Ratio
0 - 4	33	31	64	17.1	17.1	1,064
5 - 9	26	25	51	13.6	30.7	1,040
10 - 19	39	36	75	20.0	50.7	1,083
20 - 29	30	36	66	17.6	68.3	833
30 - 39	21	32	53	14.1	82.4	656
40 - 49	16	19	35	9.3	91.7	842
50 - 59	10	11	21	5.6	97.3	909
60 - 69	4	5	9	2.4	99.7	800
70+	-	1	1	0.3	100.0	
Total	179	196	375	100.0		913

APPENDIX I (c): AGE DISTRIBUTION: DIKO

Age/Years	Male	Female	Total	%	Cumulative %	M/F Ratio
0 - 4	26	25	51	18.4	18.4	1,040
5 - 9	22	20	42	15.2	33.6	1,100
10 - 19	30	22	52	18.8	52.4	1,363
20 - 29	19	25	44	15.9	68.3	760
30 - 39	15	17	32	11.5	79.8	882
40 - 49	9	10	19	6.8	86.6	900
50 - 59	9	12	21	7.6	94.2	750
60 - 69	4	6	10	3.6	97.8	666
70+	2	4	6	2.2	100.0	500
Total	136	141	277	100.0		964

APPENDIX I (d): AGE DISTRIBUTION: PAIKO

Age/Years	Male	Female	Total	%	Cumulative %	M/F Ratio
0 - 4	29	27	56	17.3	17.3	1,074
5 - 9	26	23	49	15.2	32.5	1,130
10 - 19	34	29	63	19.5	52.0	1,172
20 - 29	26	22	48	14.9	66.9	1,181
30 - 39	18	15	33	10.2	77.1	1,200
40 - 49	18	13	31	9.6	86.7	1,384
50 - 59	17	13	30	9.3	96.0	1,307
60 - 69	3	5	8	2.5	98.5	600
70+	2	3	5	1.5	100.0	666
Total	173	150	323	100.0		1,153



APPENDIX I (e): AGE DISTRIBUTION: DOKO

Age/Years	Male	Female.	Total	%	Cumulative %	M/F Ratio
0 - 4	23	22	45	13.4	13.4	1,045
5 - 9	21	19	40	11.9	25.3	1,105
10 - 19	24	23	47	13.9	39.2	1,043
20 - 29	30	33	63	18.8	58.0	909
30 - 39	29	33	62	18.5	76.5	878
40 - 49	22	23	45	13.4	89.9	956
50 - 59	11	9	20	5.9	95.8	1,222
60 - 69	4	7	11	3.3	99.1	571
70+	1	2	3	0.9	100.0	500
Total	165	171	336	100.0		964

APPENDIX I (f): AGE DISTRIBUTION: KATCHA

Age/Years	Male	Female	Total	%	Cumulative %	M/F Ratio
0 - 4	23	21	44	14.1	14.1	1,095
5 - 9	19	20	39	12.5	26.6	950
10 - 19	24	25	49	15.7	42.3	960
20 - 29	25	29	54	17.3	59.6	862
30 - 39	25	28	53	17.0	76.6	892
40 - 49	18	21	39	12.5	89.1	857
50 - 59	8	10	18	5.8	94.9	800
60 - 69	5	6	11	3.5	98.4	833
70+	2	3	5	1.6	100.0	666
Total	149	163	312	100.0		914

Source: Appendix I (a-f) Field Survey Questionnaire Analysis.

## APPENDIX II (a): 1952 POPULATION CENSUS: AGE DISTRIBUTION: MOKWA DISTRICT

Age-Years	Male	Female	Total	% of Total	Cumulative %	M/F Ratio
Under 2	864	934	1,798	7.7	7.7	925
2 - 6	1,828	1,894	3,722	16.0	23.7	965
7 - 14	1,393	1,515	2,908	12.5	36.2	919
15 - 49	6,545	6,103	12,648	54.3	90.5	1,072
Over 50	933	1,266	2,199	9.4	99.9	736
Total	11,563	11,712	23,275	99.9		987

APPENDIX II (b): 1952 POPULATION CENSUS: AGE DISTRIBUTION: PANDOGARI  
(NAMUKU) DISTRICT

Age-Years	Male	Female	Total	% of Total	Cumulative %	M/F Ratio
Under 2	1,168	1,219	2,387	10.0	10.0	958
2 - 6	2,384	2,229	4,613	19.4	29.4	1,069
7 - 14	1,347	1,315	2,662	11.2	40.6	1,024
15 - 49	5,592	6,042	11,634	48.9	89.5	925
Over 50	1,221	1,260	2,481	10.4	99.9	969
Total	11,712	12,065	21,777	99.9		970



APPENDIX II (c): 1952 POPULATION CENSUS: AGE DISTRIBUTION: DIKO(BWARI) DISTRICT

Age-Years	Male	Female	Total	% of Total	Cumulative %	M/F Ratio
Under 2	1,501	1,579	3,080	9.0	9.0	950
2 - 6	2,953	2,866	5,819	17.0	26.0	1,030
7 - 14	2,216	1,627	3,843	11.2	37.2	1,362
15 - 49	8,156	9,080	17,236	50.2	87.4	898
Over 50	1,824	2,514	4,338	12.6	100.0	725
Total	16,650	17,666	34,316	100.0		942

APPENDIX II (d): 1952 POPULATION CENSUS: AGE DISTRIBUTION: PAIKODISTRICT

Age-Years	Male	Female	Total	% of Total	Cumulative %	M/F Ratio
Under 2	1,355	1,201	2,556	11.2	11.2	1,128
2 - 6	1,827	1,655	3,482	15.2	26.4	1,103
7 - 14	1,428	1,509	2,937	12.8	39.2	946
15 - 49	5,773	5,145	10,918	47.7	86.9	1,122
Over 50	1,468	1,533	3,001	13.1	100.0	957
Total	11,851	11,043	22,894	100.0		1,073

## APPENDIX II (e): 1952 POPULATION CENSUS: AGE DISTRIBUTION: JIMBA

DOKO DISTRICT

Age-Years	Male	Female	Total	% of Total	Cumulative %	M/F Ratio
Under 2	872	823	1,695	7.5	7.5	1,059
2 - 6	1,589	1,499	3,088	13.6	21.1	1,060
7 - 14	992	1,266	2,258	9.9	31.0	783
15 - 49	6,054	6,306	12,360	54.5	85.5	960
Over 50	1,551	1,747	3,298	14.5	100.0	887
Total	11,058	11,641	22,699	100.0		949

## APPENDIX II (f): 1952 POPULATION CENSUS: AGE DISTRIBUTION: KATCHA

DISTRICT

Age-Years	Male	Female	Total	% of Total	Cumulative %	M/F Ratio
Under 2	653	658	1,311	6.8	6.8	992
2 - 6	1,720	1,586	3,306	17.1	23.9	1,084
7 - 14	1,056	1,177	2,233	11.5	35.4	897
15 - 49	4,949	5,372	10,321	53.3	88.7	921
Over 50	850	1,348	2,198	11.3	100.0	630
Total	9,228	10,141	19,369	100.0		909

Source: Appendix II (a-f) Population Census of the Northern Region of Nigeria 1952 Table C. pp. 15-16.