

**FEDERAL UNIVERSITY OF TECHNOLOGY
MINNA**

**THE EFFECT OF AGRICULTURE ON
THE SOCIO-ECONOMIC
DEVELOPMENT OF WUSHISHI
L.G.A. OF NIGER STATE**

BY

Ahmed Umar Utare

*A DISSERTATION PRESENTED TO
DEPARTMENT OF GEOGRAPHY OF
FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE
AWARD OF POST GRADUATE DIPLOMA ON
ENVIRONMENTAL MANAGEMENT STUDIES*

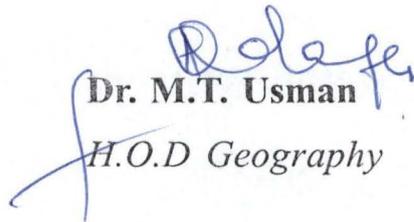
CERTIFICATION

This is to certify that, this project is a research work undertaken by AHMED UMAR UTARE PGD/GEO/2000/2001/179, and prepared in accordance with the regulations governing the preparation & presentation of project in the post graduate of School, Federal University of Technology, Minna.

 20/03/02

Dr. H.A. Shaba

Project Supervisor

 20-03-02

Dr. M.T. Usman

H.O.D Geography

Prof J.A. Abalaka

Dean

External Examiner

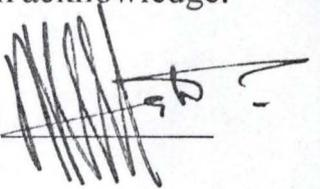
DECLARATION

I hereby declare that this research work is undertaken by me under the guidance of Dr. H.A. Shaba of the Dept. of Geography Federal University of Technology Minna.

The Project is neither copied from someone nor done by someone.

Neither whose work have been referred in this project have been acknowledge.

Name: AHMED UMAR WARE

Signature: 

DEDICATION

I dedicate this Project to my Wife, Hajiya Aishatu Muh'd Taura (Aishat Ahmed Umar), my Children and the entire Family of Sarkin Utare.

ABSTRACT

This study is an assessment of Agriculture in Wushishi to the economic and Social Development of the area. The main purpose of the research is to asset the Agricultural Productivity of difference places with in Wushishi district or Agricultural Potentials of different places within Wushishi on the economic and social development of the areas. I intend to compare it with Zaria rural settlements. In which (mortinore 1970) studied according to him, a powerful factor aiding dispersal of rural settle has been the construction of motor roads which exert an attraction which was simply due to reduction in transport cost.

But in Wushishi rural settlements, it could be understood that, Agriculture is he sole economic activity of the rural settlements. This encourages demand for farmlands given opportunities for commercial farming such as rice and yam. After heavy bumper harvest they sell surplus and the money realised is used for social activities like building of modern houses, buying bicycles, motor-cycles and if possible marrying more wives.

ACKNOWLEDGEMENT

Writing a thesis not just another task to be completed for me after it has become a major challenge in my life. It goes through a lot of stages, through data gathering, data analysis, revisions and final draft. It has been some thing of energy consumption, hopefulness and sleepless night. But thanks to Allah it was a success.

I wish to thank all my lecturers of the department of Geography of Federal University of Technology, Minna. Most especially my supervisor DR. S. R. HALIEL for structuring my work and giving me the opportunity to develop intellectually. Also his suggestions and criticisms helped to make this a better thesis.

I am grateful to my wife Aishat Muh'd Ahmed, My head of department Lt-Gen. Aliyu Muhammed Gusau (rtd) GCON and M.Y. JEGA who gave me all necessary encouragement and assistance to make my studies a successful one. Also their moral support to make this thesis a successful.

Finally, I am grateful to Allah the almighty for given me the strength and ability for protecting me and make me what I am today. Also my late parents who have provided me with inspirations in ways they never realized just by being themselves and helping me to make my life happy and rewarding. My special regards to my children, Umar Faruk Ahmed of Hassan Gwarzo International School, Muhammad Sani Ahmed of Zaira Academy, Abdulrahaman Ahmed, Zakari ya'u Ahmed, Fatima Ahmed, Safiya Ahmed, finally small daddy Ahmed Suhaylu.

TABLE OF CONTENTS

	Page
Title Page - - - - -	i
Certification - - - - -	ii
Declaration - - - - -	iii
Dedication - - - - -	iv
Abstract - - - - -	v
Acknowledgement - - - - -	vi
List of Figures - - - - -	viii
List of Tables and Plates - - - - -	
CHAPTER ONE	
1.1 INTRODUCTION - - - - -	1
1.2 THEORETICAL BASES - - - - -	4
1.3 METHODOLOGY - - - - -	9
1.4 LITERATURE REVIEW - - - - -	10
CHAPTER TWO	
2.1 LOCATION OF TOPOGRAPHY OF WUSHISHI - - - - -	13
2.2 SOIL TYPES OF WUSHISHI DISTRICT - - - - -	13
2.3 CLIMATE OF WUSHISHI - - - - -	14
2.4 VEGETATION OF WUSHISHI DISTRICT - - - - -	15
CHAPTER THREE	
3.1 AGRICULTURAL SYSTEM IN WUSHISHI - - - - -	16
3.2 LAND TENURE SYSTEM IN WUSHISHI - - - - -	19
3.3 SOIL CONSERVATION SYSTEM IN WUSHISHI - - - - -	22
CHAPTER FOUR	
4.1 ANALYSIS OF AGRICULTURAL POTENTIALS OF SAMPLE STUDY AREAS - - - - -	25
CHAPTER FIVE	
5.1 SUGGESTIONS AND RECOMMENDATION - - - - -	37
5.2 SUMMARY AND CONCLUSION - - - - -	39

LIST OF FIGURES

	Page
- THE STUDY AREA - - - - -	
- WUSHISHI RURAL SETTLEMENT STUDY AREA -	5
- WUSHISHI LAND USE MAP - - - - -	20
- WUSHISHI DRAINAGE SYSTEM - - - - -	28
- FARM PRODUCTION IN PREVIOUS SETTLEMENT AREA - - - - -	42
- FARM PRODUCTION IN PRESENT SETTLEMENT AREAS - - - - -	43

LIST OF TABLES

- OLD AND NEW KUTUNKU - - - - -	26
- OLD AND NEW GEKUN - - - - -	27
- OLD AND NEW TUKUNJI - - - - -	29
- MAIGORA AND AMIWORDO - - - - -	30
- OLD AND NEW LOKOGOMA - - - - -	31
- DIFFERENT SETTLEMENT OF KWATA - - - - -	32
- OLD AND NEW TUNGA - - - - -	33
- OLD AND NEW MADEGI - - - - -	33
- BEFORE R.B.D.A. AND AFTER R.B.D.A. - - - - -	34
- KANKO AND MAKUSIDI - - - - -	36
- SUMMARY OF NEW SETTLEMENT AREA PRODUCTIVITY - - - - -	40

CHAPTER ONE

1.1 INTRODUCTION

Wushishi District is recognised as part of the middle belt of Nigeria. One of the sparsely populated part of the country. Agriculture in the main activity in Wushishi Rural Areas. The Agricultural economy of Wushishi is based on production of food crops such as rice, Guinea Corn, Millet, Yam, Cassava and vegetables along river Kaduna using irrigational system. Also rice being grown on flooded river valley of river Kaduna and Fadama areas of Agwa, River basin Authority Kanko.

Wushishi was formerly under Kontagora Local Government Area, but with the location of New Local Government Area, Wushishi district is now a Local Government Area of its own. It has been existing as district headquarter ever since before the coming of Europeas to Nigeria. Wushishi has many rural settlements scattered all over the district.

In the rural settlements the people depend on agriculture and gains food crops for home consumption and surplus like rice, yams etc. are sold or for commercial purpose. Local materials are used for housing, firewood is the primary sources of energy, fishing is also important activity along river Kaduna. But with the construction of Shiroro and (Zungeru Dam underconstruction) fisherman are finding it difficult to even get fish for home consumption which was formerly commercialised.

So I intended to make a research in this area using the hypothesis. The impact of environment on Agricultural development leads to economic and social development in Wushishi.

AIMS AND OBJECTIVES

Firstly, as agriculture is one of the main economic activities in almost all the rural settlements in the Local Government Area, I intend to evaluate the Agricultural Potentials of various rural settlements within the Local Government Area. This will enable me to compare those areas that produce higher agricultural products (input) than others. Also if it will prove that these settlements are predominantly agricultural.

Secondly, A examine the main reason why people migrate from one settlement area to another, because there are many people within the Local Government Area that migrated from one settlement area to another. This could be seen in old Tukunji and New Tukunji, old Gekun, New Gekun, Maigora and Arontagi to Emi-Woro, Old Madegi to New Madegi etc. The causes of migrating in some cases might be done to infertile soil and in agricultural productivity or population pressure in the old settlements.

Thirdly, to examine soil conservation system this is because soil conservation is one of the determinants of Agricultural output of a given area. Also the nature and composition of Wushishi and its environment necessitated the conservation of soil through racism techniques in various rural areas. This is because by nature of the soil fertility of Wushishi is partly low which conserving the soil, will enable the soil to produce more for the increasing population and commercialisation for human daily needs. Most especially those that are yet to get married prepare for their wedding and during dry season new houses are built.

Fourthly, to examine the importance of transport system in relation to agricultural production in different areas. This is to examine the Agricultural importance in the construction of roads. Like construction of road from Zungeru to Akare were alot of agricultural products and cattles are transported to either Mariga or Wushishi Town.

Also to examine the relative importance of river Kaduna either has cause of some settlements like Kwata-Tsadu Madegi, Kwakwagi etc. in which riverflows or available farmlands good for commercial crops.

Fifthly, to see different agricultural system practised in different rural settlements. But most of them practices shifting cultivation and bush fallowing. They produce rice, cassava mainly for sell. While guinea corn, maize, millet etc. are meant for home consumption. But this days some of the surplus are sold in the market.

Finally, to examine the landtenure system with the introduction of Land use act (decree), land are acquire through Ministry of Land and survey which has the ultimate authority to give out land. But practically it is not observed in the rural areas, because each village is under the trusteeship of the village head (Mai Anguwa or Dakaci) who allocate farmland to each member of the community. While the ultimate authority over the village land vested on the chief of Wushishi Alh. Ibrahim Abubakar I. But he is incapable of upholding land to any person who has been approve by the traditional council.

JUSTIFICATION OF AREA CHOSEN

In evaluating agricultural potentials of Wushishi Local Government Area. It would be seen that over 90% of the population engaged in farming. They produced both food crops for home consumption and cash crops mainly for sell.

During rainy season, rice and other crops are produced purposely for either home consumption and surplus for commercial purposes which is meant to uplift the family financially. During harmper harvest, the indigenes buys cattles, goats and other valuable animals for rearing, which after sometimes, or has time progresses the number of animals increases. During difficult time or less harvest, they sell this animals for urgent needs. i.e. medical bills.

Finally, most settlements are found along Kaduna River Valley which most of them engage in fishing and means of transporting their food crops from farm lands to their homes. It is practically seen in settlement areas, like Madegi, Kwakwagi, Wushishi town and Kwata-Tsadu among others.

1.2. THEORETICAL BASES OF THE STUDY AREA

Rural land use patterns are concerned with Agricultural Land Use Pattern. Agriculture is the main economic activity in Wushishi Rural Settlement areas, with like fishing and commerce (like buying and selling of cattle) from Wushishi to Mariga vice-versa.

Rural Land Use Pattern was first studied by (David Ricardo from Late 18th to early 19th century). He presented a statement of economic agricultural rent which was the foundation of his theory. He pointed out that:-

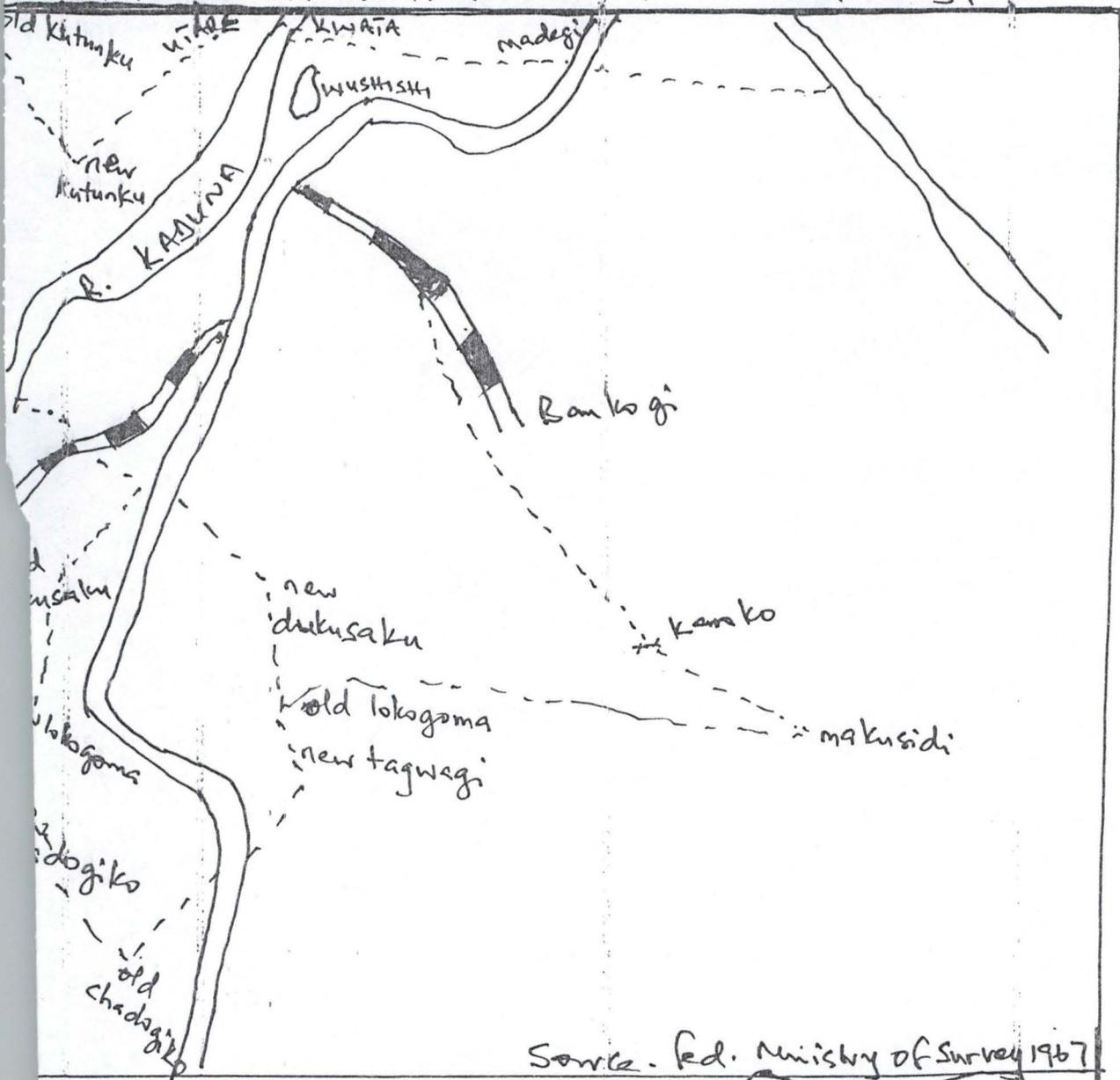
“Most fertile land are used and less favoured land will be brought into use as demand for Agricultural Product increases”

Then he went further to say:-

“Whether land is fertile or not, all land have the same crust structure for both labour and capital input”.

The significance of economic rent is that, it determines intensive and extensive margin of the land use. It encourages the best land first and poor quality land last. Economic rent of a particular piece of land which is at a margin of economic agricultural cultivation, the concept of economic rent underlies all concept of competition of the use of land, also provide the means where this competition is resolved by providing pattern of land use based on economic rent play an allocative role in rural land use.

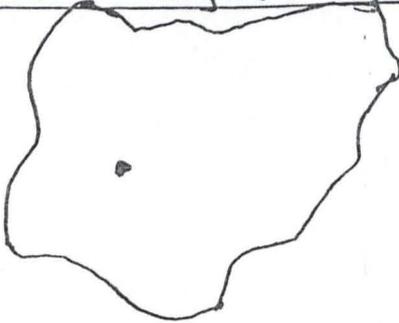
WUSHISHI RURAL SETTLEMENT STUDY AREA.



Source - Fed. Ministry of Survey 1967

LEGEND

	main road
	Sec road
	main path



The model would be applied to Wushishi rural landuse where agriculture is the primary means of economic activity, the model of economic rent underlies all concept of competition for landuse where people migrate from one settlement to another, where by due to availability of land in new settlement are capable of producing high return. So the concept of competition is solved in this means where by people migrating from the old settlement areas, where they acquire new farm lands for purely agricultural purposes.

This could also be related to work done by (M.J. Field) according to him, Krobo migrating began to establish subsistence food farms in the forest in the 19th c other major sources area, the Akwa pim ridge, although salubrious and defendable, was too narrow and steep field to provide enough farmland for ever increasing towns.

This could be related directly to Wushishi Rural Settlement more particularly to migration of people from one settlement area to another. This could be seen where we have old Kutunku and New Kutunku, old Tukunji and new Tukunji, old Kalakala and new Kalakala.

Another person, also put his theory forward, he is (Johann-heinrich ron thiiman in 1826) He published his work the "Isolated State" with the aim of discovery the law that governs the prices of agricultural products and the law which price variations are translated to the pattern of land use according to him:-

"The distribution of crops, livestock, and farming depend on competition between products and farming system, for the use of any plot of particular land".

He goes on further to say that:-

“In any particular enterprise that yield the highest net-return will be conducted and the competing enterprise that yield the highest net-return will be conducted and the competing enterprise will be pushed to another plot where they will yield the highest return”

The return in his model is not financial return, but rather the return which is expected from land depend on crop produce, he observed that (Richard, 18th and 19th C) based his model on the inherit fertility of the soil but exact the same phenomenon, if the quality of the soil varies not in respect to fertility but in respect to location.

This model could be applicable to Wushishi rural settlers were farming depend on competition between producers and farming system. This is because crops are grown in farm land suitable for home consumption and surplus being sold. This is why in most of the areas like Bankogi, Kanko, Pakara and Makusidhi rice is more productivity due to the suitability of soil. Likewise Wushishi village and its near by surroundings like Tunga-Kawo, along Pakara plain areas, they produce millet and guinea corn in abundance.

Also von thii man model made an attempt to relate the intensity of land use has indicated by economic rent to location from distance of a central market is reflected in transportation cost, but the assumption he made both in physical environment and means of transportation are not applicable to Wushishi District. This is because, Wushishi has no uniform physical environment. It comprises isotrophic plains where millet and guinea corn are produced and marshy areas where rice are produced for sale. But due to 1979 to 1983 civilian administration, minor roads are constructed which buses are now used instead of using horse drawn cart to transport food crops from farmlands to central markets with cheap cost. Also some settlement areas along the railway line do transport their products by rail.

Von proceeded to examine the data in which he collected for 5 years from his Estate on the cost of production and the yield obtain. The cost of transportation and them the ruling prices of the products on thus bases, he calculated the economic rent according to the type of land use and at different distances from the main central market of the town.

Based on this model, von tendency was to arranged land use pattern on rings around settlements. In present communities landuse zonation are based on land use journey, which are mostly done by foot, bicycles or by donkeys just applicable to Wushishi rural community farmers. Also agricultural implements, seed and manure are mostly been carried to the field from where settlements are nucleated to large distances.

Another good example applicable to Wushishi rural landuse, is the study of Soba village by (Prothero in 1957) provide a good example of land use zonation. It can be regarded as nucleated settlement. So he identified four major land zonation. The zones are approximately concentric subjected to limitations imposed by soil factors such as, occurrence of indurated laterite which is totally absent in Wushishi district area but having valleys of steams which are not cultivated.

Also Kano closed settled zone has great intensification of land use in respond to land shortage. This intensification of agriculture in Kano takes the same measure with that of Wushishi district farmers. This is by substitution of animal manure fertilizer. Also inter-cropping is another character of farming practised and the greatest intensification and commercialisation of agriculture within the district is apparent in the fadama where irrigation on from River Kaduna using shadulf enable market garden crops to be grown throughout the dry season.

REFERENCES

- M. CHISHOLM:- Rural settlement and land use.
R.M. PROTHERO:- People and land in Africa
MORGAN W.B.:- Zoning of land use
R.K. UDO:- Geographical Regions of Nigeria
OGUNTOMIBO:- Nigeria Geographical development.

1.3. METHODOLOGY

The research method is practically the use of questionnaire oral interview and field observation. The system used in administering the questionnaire is by systematic random sampling technique, where by every fourth house was sampled.

The bases of comparisons are agricultural productivity, availability of water supply, transportation, agricultural loan and the influence of the River Basin Development authority.

Evaluation is done by correlation coefficient using the formula

$$r_{xy} = \frac{\sum xy - n \bar{x} \bar{y}}{\sqrt{(\sum x^2 - n \bar{x}^2)(\sum y^2 - n \bar{y}^2)}}$$

Also using the formular for coefficient of determination of r^2) on explanation or statistical Test of r^2

$$T = \frac{2(n-2)}{1 - r^2}$$

So the yield of agricultural product correlated with acres of land are compared for individual settlements. So the present and previous settlement are compared to see the most agricultural potential area.

1.4. LITERATURE REVIEW

In testing the hypothesis for the causes for the dispersal of rural settlements in Wushishi district. According to (Mortimore 1970), in his work on Zaria and its region. He found that, the powerful aiding dispersal of rural settlements has been the construction of motor roads which exert an attraction which cannot be entirely understood simply in terms of reduction in transport cost. Newly loosely clustered settlements and isolated compounds are appearing along the Major road. But in the case of Wushishi the process of dispersal is aided by increasing demands for farm lands following opportunities for commercial farming. But likewise according to (Mortimore 1970) some parts of rural-Zaria, Immigrant farmers came from land-hungry areas which result to founding of new settlement.

The dispersal of rural settlements in Wushishi could be related to the work done by (captain omiunu) he studied factors of dislocation of settlement in Bendel State. And his findings are, either area of settlement abandoned or spatially abandoned. Like wise either such a parent settlement migrate completely to settle in a newly developed high way or settlement extension, which such settlement remain detached from the new centres of economic gravity. This could be applied to Wushishi rural settlements i.e. kutunku where they still return to their previous settlement for farming. While settlement like old Gakun where people migrate permanently, they totally abandoned the old area.

He also concluded that re-location have lead to agricultural villages and farm stake with identical names but distinguished by the surface "old site" and "new site" just similar to Wushishi rural settlement having old lokogoma, new-loko-goma. etc.

The work done by (Baba and Salau), they studied the causes for the re-location of settlements along Kanoto Zaria road. It could be seen that the construction of the

road brought about movement of people from previous area of farming to new settlement. It could also be applied to Wushishi because some settlement abandoned their previous one to a new settlement in order to engage economically i.e. old Gekun to new Gekun near the railway station.

Also the settlement Geography of Iboland has been analysed by several authors (Morgan, 1957; Udo, 1958; 1965; and Flood in 1969) They discover that the causes for the dispersed form of rural settlements in Iboland came about from the disintegration of nucleated settlements. This could be applied to Wushishi especially with the increase in population, new settlements are found with their new farmlands.

In South Eastern Nigeria i.e. Mbaise, Mbayishi, Ikeduri etc. we find that several form of dispersal settlement. This could be seen with TIV people in Benue State and Nsukka in Anambra State. The entire village territory have been settled having small round compounds found within the farmlands. The reason for the dispersal form of compounds is the increasing demand for farmlands. This is directly appropriate to Wushishi dispersal of rural settlement. They move collectively where land will be sufficient for individual to farm.

In the Yoruba territory, we have dispersed settlements due to reducing journey to work. (Udo 1970). This is because of the insufficient land that will be available near the village. The land area is very small. So they move out to farm settlements near their farmland areas i.e. cocoa which require large land, so they move far away from their traditional and tenure system to where they'll get enough land. So we see hamlets like Wushishi with time this hamlets becomes large and can support itself with services i.e. Kando, lokogoma etc.

Also in Ibarapa several settlements have been found apart main settlement i.e. Igbo Ora, Euruwa, Lamlate, Tapa, Igangan, Idere and Ayete. A study carried out,

there are 700 villages and hamlets which was due to two main reasons. Firstly, to search for agricultural land to produce primarily for consumption and commercialisation which is directly related to Wushishi district while secondly, so seek freedom from the families, all the norms and values are abandoned.

Also finding of many hamlets and villages (Aba) located near the farm lands, Oko Negan) This is by moving to a far distance area. So settlements are formed to reduce time and cost to a given farm land. For example (Ojo 1973) in order to reduce travel costs to farm, farmers in Idare area have adopted the practices of establishing "satellite" farm villages.

Thirdly, likewise in Nupeland is characterized largely by nucleated settlements called ezhi (villages and towns) and Tunga (Hamlet). They have large villages and towns which in returned having many daughter settlements than the village proper (Nadel 19512. It is important to note, however that in the more densely settled parts of Nupeland, Tunga settlements have increasing effect occupation of farmlands. The mobility of Tunga settlement is more characterized of the sparsely populated western section of Nupeland.

CHAPTER 2

2.1 LOCATION AND TOPOGRAPHY OF WUSHISHI

Wushishi is located in the Middle belt of Nigeria, and recognised as one of the sparsely populated part part of the country.

Wushishi district is in Kontagora Local Government Area of Niger State.

Wushishi could generally be classified in the Nigeria-Benue through of Nigeria relief region.

Niger - Benue through starting from Sokoto plains in the north-west, through Lokoja, and ending near Yola in north - east, is an elongated bow-shaped low land the Niger-Benue through. It represents a previous arm of a sea, probably an extension of the Atlantic, into which sediments were deposited. Its surface generally lies below 300metres, and has been deeply dissected by erosion into tabular hill separated by George-like river valleys. The surface of the Benue section is, however, less rugged than that of the Niger -Section, because of Benue and its tributaries do not erode down as fast as the Niger and its side steams.

2.2. SOIL TYPE OF WUSHISHI DISTRICT

Wushishi soil zone is found in the interior zone is found in the interior zone of laterite soils. It is noticed that in the north capillary attraction causes salt encrustations to be left just below the surface; while in the south, heavy rainfall promotes leaching and chemical corrosion. It appears that these two processes, alternating with one another in the dry and wet seasons, are important in the formation of a type of soils known as laterites.

In the Sudan Savanna belt, due to rainfall is too meagre to encourage leaching. In the high forest zones the dry season is not dry and long enough to give rise to noticeable capillary attraction. It is therefore in the guinea savanna regions, where the two processes reach their maximum relative strength because of the distinct dry and wet seasons of more or less equal duration, that laterite soils are easily formed.

These soils are deeply corroded and grey or reddish in colour. They are generally stickily, impervious to water and of mediocre fertility. Clearing of the virgin forests on them reduces their fertility further; and since clearing has to be done before planting can be attempted, these soils are of little use for agriculture.

When exposed to the surface, they become as hard as brick. For this reason they are more useful in road-paving and wall construction than for farming.

Laterite soils are not the only soils found in this zone. The Biu Plateau has rich soils which have disintegrated from volcanic lava. These soils are productive and offer prospects for the expansion of the areas of cotton production.

2.3 CLIMATE

Wushishi climatic zone lies within the tropical hinterland which comprises a strip of country approximately 240 kilometers wide in the middle belt of Nigeria. It is bounded in the north by the double maxime rainfall line. The total rainfall is between 100 and 150 centimeter and has up to four months of dry season. But with 1983 drought, Dry season lasted for more than five months. Relative humidity is over 80% in the morning and falls to between 50% and 70% in the afternoon.

2.4. VEGETATION OF WUSHISHI DISTRICT

Wushishi vegetation belt is found in the Sudan Savanna zone. It is typical of places where the total annual rainfall is between 65 and 100 centimeters and the relative humidity is constantly below 40%, except in the few wet months when it sometimes goes up to an average of 60%. The duration of the dry season is about 6 to 8 months here.

The vegetation of Wushishi is characterized by producing important economic crops like groundnuts, cotton, millets, rice and maize and has the highest concentration of cattle in the country. It is therefore easy to see that the vegetation here has suffered great depredations from the hands of man and his livestock.

The actual vegetation is made up of short grasses, 1.5 to 2 meters high and some stunted trees.

The soil factors introduce local departures from the general pattern of vegetation in this district.

1. Where the soil is made up of clay, it is frequently water logged in the wet season because of its impermeability. In the dry season, however, the grass dies off, and the clay dries, shrinks and cracks.
2. Where soil composed of the fine materials it is often blown away by the wind. This erosion leaves bare patches of exposed infertile soil which grow a few dwarfed plants and no grass at all. The local name for such an area is Fako.
3. On the flat flooded plains of rivers the soil is annually flooded in the wet season. These areas are inhabited by rice production most especially in Wushishi rural areas. They are very important economically because rice is extensively cultivated on them in the wet season; and where they are near small settlements, they are irrigated and produce market garden crops. This is mostly seen along River Kaduna where the cin-rani cultivate yearly in Wushishi district. The Local name for such an area is called Fadama.

CHAPTER 3

(FARMING IN WUSHISHI)

3-1 AGRICULTURAL SYSTEMS:-

The basic agricultural system practiced in Wushishi is the traditional system. It is characterized by farm family, the village Labor and the use of little fertilizer. The main characteristic of Wushishi traditional agriculture could be described as follows. Firstly. There is predominantly small scale farming, with a small land holding, Due to small land holding farmers practices shifting cultivation and bush fallowing. Most production is for home consumption. But - during period of good harvest surphous are sold in nearest market.

Secondly, small capital is invested in farming, even though some of the farmers get agricultural loan from Niger - state Government, but they don't invest it on agricultural purposes, but use them for some socio-economic needs such as increasing number of wives, trading, buying net and canoes for fishing, buying motor cycles etc. Also there is limited use of modern inputs like, fertilizer, chemicals and improved seed etc which results in low out put.

There are two main agricultural system practiced in Wushishi rural areas. Firstly shifting cultivation. This is by moving from one settlement area or moving from one farm land area to another after the exansion of the soil fertility. It could be seen that in most rural areas in Wushishi, small piece of land area about 5-6 acres is Burt to clear shrubs and undergrowth, this is to enable them to cultivate it, which also act as fertilizer. This could be seen mostly along Kutunku farmlands, Tunga and Kwakwagi rural areas in Wushishi district.(see figure 3-1)

Seeds are planted in mixture of soil and ashes in land prepared by the use of elementary tools like cutlasses, hoes and axes. These tools are used in all the rural areas in the district.

Likewise the patch is abandoned when the crop yield declines (after 2 to 3 years) and fresh areas are cleared again.

Lastly, very little care is given to the crops during the growing periods. The second type of farming practiced in Wushishi rural area is bush fallowing. It is a means in which a given piece of farmland is left without cultivation in order to allow the land to regain its natural fertility within a given time period.

Shifting cultivation is modified into the system of bush fallowing. When the period for the recuperation of the soil is fixed, the farmer may return to an abandoned patch when soil has recovered its fertility. The length of the fallow depends on the number of farms he has, and depends on the density of population of an area. When the population increases, the demand for land increases, and as a result lessens the period of fallow. In Wushishi district the increase in population has limited fallow period to an average time of five years.

It could be seen that in shifting cultivation people migrate from one place of settlement to another in order to acquire new farmlands, this could be seen mostly in Kutuku, Tukungi, Gekun etc while bush fallowing is by allowing a piece of farmland to regain its natural fertility in a given period of time.

In both types of farming system, most crops are grown for subsistence while others are grown for commercial purpose. The cash crops grown in the area include, rice, groundnut and cassava. The crops are sold or exchanged when there is surplus production from a good harvest.

Secondly, crops are inter-change, where by fara-nuna, this are crops which require short growing period, which are inter-changed within the local farmers of the area, this is in order to increase their productivity.

Some of the reasons that led to be development of commercial agriculture by a few individuals in Wushishi include:-

Firstly, some areas have fertile soil and adequate rainfall for the production of certain commercial crops. This could be seen in Kanko in Wushishi district where traditional farms are now been converted to mechanized farming by the federal government under the scheme of Niger-river basin development authority Kanko and Tungan kawo. See figure 3-1.

Secondly, the value of crops like rice, groundnut, cassava and Guinea corn have increased by about thirty percent in 1983 and this provide the incentive for the specialized production of such crops.

Thirdly, the rapid urbanisation and the rising income of the urban populations in Minna, Kontagora, and Bida which are closer to Wushishi, which resulted to an increased demand for food stuff. It could be seen that there is high demand for cassava to make Gari by local Women. So presently most of the rural areas produce rice and cassava for sale, while Guinea corn for home consumption.

Lastly, with the development of transport network in Wushishi area, the local women abandoned taking load by head but instead use truck. In addition laborers are conveyed to work on time, due to cheap transportation fares. This increase agricultural productivity of the area.

In conclusion, shifting cultivation and bush fallowing have been considered the most economical method in Wushishi rural areas, largely because the convert of rural farmers has been to increase output per man rather than per unit area. But due to the prevalence of this system, farmers seldom introduce permanent improvements to their farms. See figure 3 -2

3.2 LAND TENURE SYSTEM IN WUSHISHI

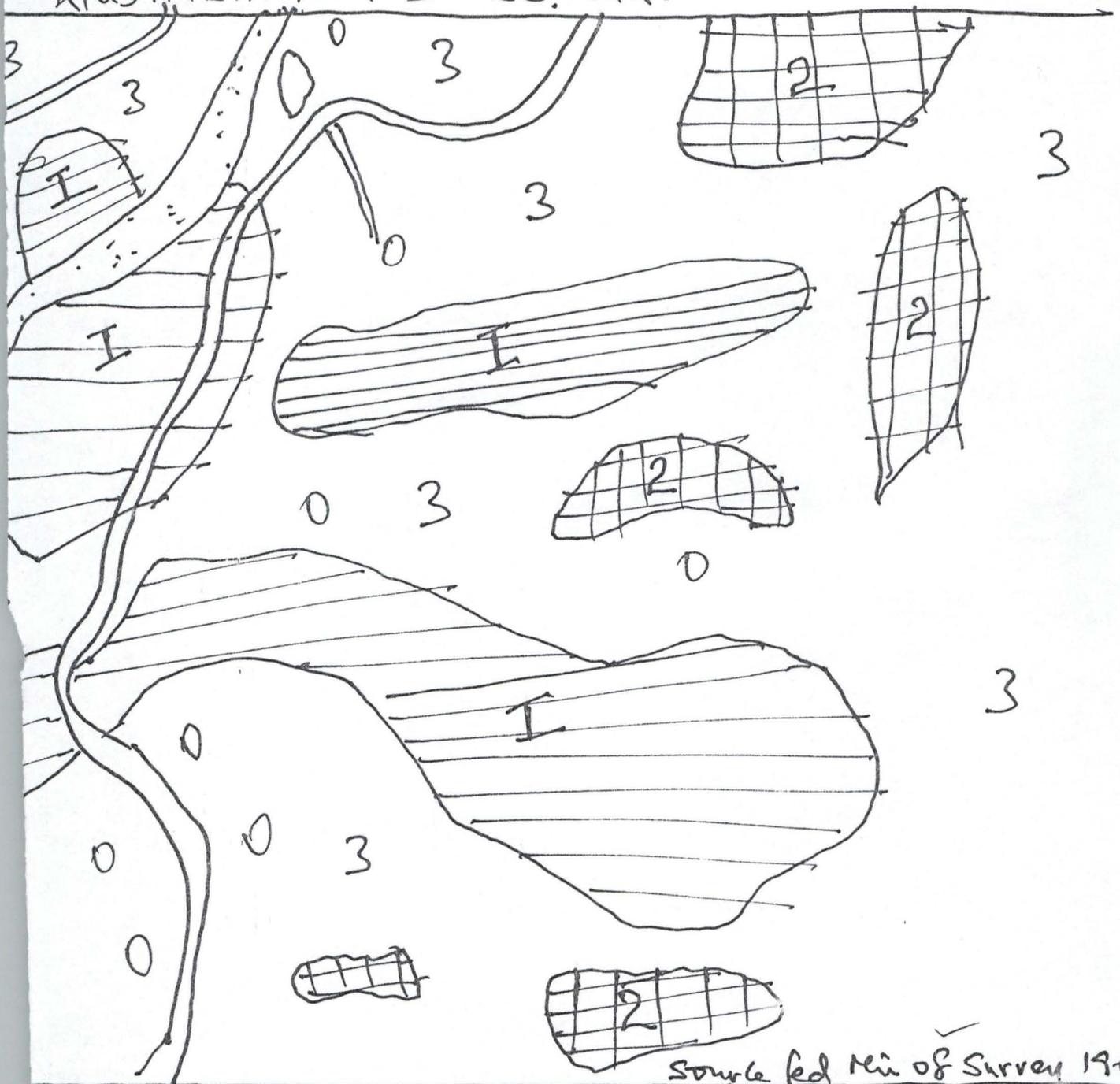
Each village settlement is under the trusteeship of the village head. i.e. In Madegi, we have Estu Madegi, in Tasha, we have mai Anguwa Tasha, in Utare, we have Sarkin Utare etc. while the ultimate authority over village land is vested in the Chief of Wushishi. The Village Heads has an important function to perform in the life of the individual member of the village. For example, as part of his political authority, the chief of Wushishi has control over village heads and land. It is however, an administrative control only, for his however, in capable of with holding land from any person who has been approved by elders in the community. The Chief is therefore not an autocrat and he cannot exercise his authority and control overland in arbitrary fashion. A part from allocating specific areas of land to each individual member of the community he tries to see no conflict arises from any village.

RIGHT TO OWN LAND :-

In Wushishi, every one traces the path of acquiring right to land from the time that a youths starts to accompany his father to the farm. The farther, of course, has been allocated land by the chief or village head so we could see that the traditional land tenure system is contradictory to the land act decree.

So the son must be given a piece of land to cultivate personally or if they are many, they cultivate rotationally year after or collectively. This could be seen most

KIUSHISHI LAND USE MAP



LEGEND

I	Padama Cultivation
2	Bush Grazingland
3	Farm land park
0 0 0	Settlements
— —	Road
~ ~ ~	River Padmas

FIG 3-1

especially in Utare, Pakara and Kwakwagi village settlement areas. Where by brothers after the death of their father, they cultivate the land collectively and have some two or three farm lands where they cultivate individually. This serves as an incentive to the youth to retain his interest in farming, so that on the death of the father, his son inherit the land.

Clearing virgin land is also an avenue through which a native man acquire rights in land. This is by asking permission from the village head (Mai Anguwa). If the permission is granted such land becomes the absolute property of the one who cleared it and his children can inherit the land even after his death.

Also during dry season, there tend to be migration of people from Kano and Sokoto to Wushishi. This is in order to cultivate the fadama areas along River Kaduna. Before they start to cultivate the fadama, they have to make an initial payment. This is because some of thus migrants might decide to return home without clearing the land for the landowner to use during planting season. So this initial payment are used for clearing the land when the Cin-rani people have finished using the land. Also some exhaust the soil fertility, this is because they use little or no fertiliser. Also they subsequently pay tribute as an acknowledgement of the strangers appreciation of being granted the use of the land. This is done before but not now. But when he decides to leave, his right to use the land ceases over the land. On the other hand, if he desires to stay permanently, his rights of use is retained and is passed on to his heirs. Under - traditional system however, a stranger in Wushishi, land could never have absolute ownership to land.

Cin-rani people in Wushishi could acquire right in land through borrowing. Borrowing is allowed to those people who come to Wushishi through migration. Kwata they came from different part within the state and settled permanently in the area. But having one common ethnicity (Nupe). Likewise borrowing is allowed to those people who come for Cin-rani, mostly from Kano and Sokoto to practice irrigation farming along the fadamas of river Kaduna

ALIENATION:-

Permanent alienation of interest in land through sale was strictly forbidden within the context of traditional Wushishi tenure system. Borrowing is mostly practised in form of temporary acquisition of rights in land among the natives.

So in conclusion, the central issue in the analysis and discussion of Wushishi land tenure system could be divided into three, this is by acquiring land through inheritance i.e. birth and secondly, by borrowing thirdly, clearing of virgin land with the permission of the appropriate authority.

3.3 SYSTEMS OF SOIL CONSERVATION

In any environment, be it agricultural or otherwise there is a great need for the conservation of soil. Soil conservation could be defined as the preservation of soil from destruction by careful control and management, complied with favorable balance in the use of the environment.

Therefore, agriculture of any kind is possible in Wushishi rural areas only with careful soil conservation measures.

One of the main reasons why soil must be conserved is that, population and the demand for food are increasing and the soil has to produce enough. Soil conservation could result in increased output to meet the demand. In a related factor, the population of Wushishi especially since the introduction of free primary education, many young people are deserting from agricultural sector to take up teaching and other jobs. The few people left which are mostly old men in the rural areas are to farm and feed the ever expanding population.

THE TECHNIQUES OF SOIL CONSERVATION IN WUSHISHI DISTRICT

The nature and composition of Wushishi and its environment necessitates the conservation of soil through various techniques in various rural settlements in the district. This is because, the nature of Wushishi topology varies, whereby different crops are best produced in a given topology. It could be seen that rice are best cultivated in marshy areas along Kaduna river, and various places like Bankogi, Pakara, Makusidi, Kwakēagi etc while millet and Guinea corn are cultivated mostly in fairly flat areas i.e. Tunga kawo, Kutunku, madegi etc.

Ridging may be adopted to varying topographic conditions and the differing needs of food crops. Mostly in tasha around Tunga, utare and between Zugeru and loko-goma, the ridges in this area are continuous and at regular spaced gaps, in some areas ditches flow are lower than the depression between the parallel ridges so that it does not stand, thus could be seen in areas like Kwakwagi, Madegi and other small affected areas like Geku, Kalakala and Pakara. They produce mostly, Millet and Cassava. The drainage ditches are spaced closely enough together so that no single one will carry a large volume of water and thus deepen its channel.

The height of the ridges depends largely on the deepness of the spot, and where a heavy volume of water is expected as in rice producing areas. Some ridges are short and built up until they become mounds as high up as two and half feet. There are mostly found in to marshy areas of Madegi, Pakara, Gekun, Kwakwagi and large portion of Kanko, Makusidi, Bankogi and Tunga kawo where the Niger River basin development occupy marshy lands for production of rice and constriction of a dam.

Also to the compost is the nature from the goat huts, and from other building, housing, sheep, cattle's or horses which graze outside the village during dry season.

All this contribute as a source of manure. In a related development, all the animals including goats and cattles owned by nomadic fulanis are allowed to move freely during the dry season proceeding the harvest period and on the process they also drop their drug on the fields.

Similarly human beings are also not left out of this process because, individuals also customarily defecate of homestead fields at some distance from their houses this fact is evidenced in all the rural villages in Wushishi district, with the exception of the main Wushishi village settlement. This is because almost all the compounds have toilets.

Soil conservation is not confined to the use of the bung-cum-decayed vegetation. When bush field are being prepared for cultivation the first step is the pulling of all grass and bush. This materials are given few days to dry before the fields is hoed. Piles of bush are placed here and there on the newly made ridges and fired to provide every bit of wood ash from working fire in the homestead is also saved in small huts built for the purpose. For instance, baskets of powdery gray ashes are taken to the field by women groundnuts or sweet potatoes are 1-2 months old and a handful is sprinkled on each plant.

In some areas, i.e. Ami-woro, Tungan-Kawo, we could see that trees and bush destroyed by field clearing exposed the land for soil erosion. This is especially true of barren lands that are loft to fallow because the soil been destructed due to continues infiltrations in much rural areas.

When bush clearing and burning are also used, though nitrate in to soil is increased, other valuable bacteria needs by crops are destroyed in the burning process. In addition, it is the trees and bush that are burnt which are supposed to supply shelter from young plants against wind harzard. Thus it could be seen in areas along the main road from Zungeru to Wushishi and from Utare towards Pakara, during strong wind, tree crops are mostly destroyed.

CHAPTER 4

DATA ANALYSIS

As it could be seen that evaluation of agricultural productivity of different rural settlement areas is one of my main objective in this research, This is because by evaluating agricultural production of each settlement area it will enable me to understand whether people migrate from one settlement area to another due to low agricultural productivity or lack of sufficient land for farming or other social factors.

It would be more relevant to examine the more productive settlement by comparing the previous by using correlation coefficient method between plots of land and the yield per farmer in a given settlement area. This will enable me to have the calculated value for both previous and present settlement area. Then compare them to see the area of significance or in significance. This is either where agricultural production is high or an agricultural area where commercial agriculture is practised due to favorable environmental conditions, compared to others with less agricultural productivity. Thus will result to settlement area either spatially or wholly migrating old settlement area to a new one. This brings about previous (old settlement) and present (new settlement).

It could be seen that twelve rural settlement areas were sample and interviewed, Below are the comparism between the previous and present settlement areas.

TABLE 4-1:- Showing which settlement area is more productive between old Kutunku and new Kutunku

Area (Previous & Present	Degree of freedom (df)	Calculated value	Table Value (T.Test)	Result (Significant insignificant)
Old Kutunku	2	-1.5	2.9	insignificant
Present Kutunku	3	709	2.3	significance

Source:- based on information supplied by the farmers during interview.

From the above tables, we could see that, the old settlement produced less. This was due to over cultivation of farm land which results to exhaustion of soil fertility. It could be observed empirically that, due to limited availability of farm lands and unwillingness of the people to clear virgin lands for new farm lands for new farm-lands. This results to continuous cultivation of existing farmlands until they lose their natural fertility. See 4-13

Also lack of better means of transport. The only means of transport is by foot path. This is either using donkey or foot path. Also the settlement faced the problem of insufficient drinking water.

But in the new settlement area (new Kutunku) they acquire new farmlands, which permits them to practise bush fallowing. The present settlement is accessible both by rail and road. Also with availability of fadama, rice are cultivated along river Kaduna and some of them engaged in fishing. See figure 4-13

So it could be seen that, the previous area is unproductive while the present new settlement is more productive. From the above analysis, we could see that old Kutunku is significant.

TABLE 4:2:- To show difference between the two settlement areas. Old Gekun and new Gekun.

Area	degree of freedom (df)	Calculated Value	Table value (T-Test)	Result
Old Gekun	3	45.4	2.3	significance
New Gekun	3	0.9	2.3	insignificance

Source:- based on personal knowledge of the area and information supplied by farmers during interview.

From the above, we could see that old Gekun is more productive than the new settlement area. This is because in the old settlement area, there are more available farm lands than the present settlement area. Has a result they do most of their farming on their previous farmlands.

This means they farm in the old farmlands but settled in the new settlement area this was due to available of drinking water due to its nearness to a valley and accessibility of the new settlement, which is by road and railway.

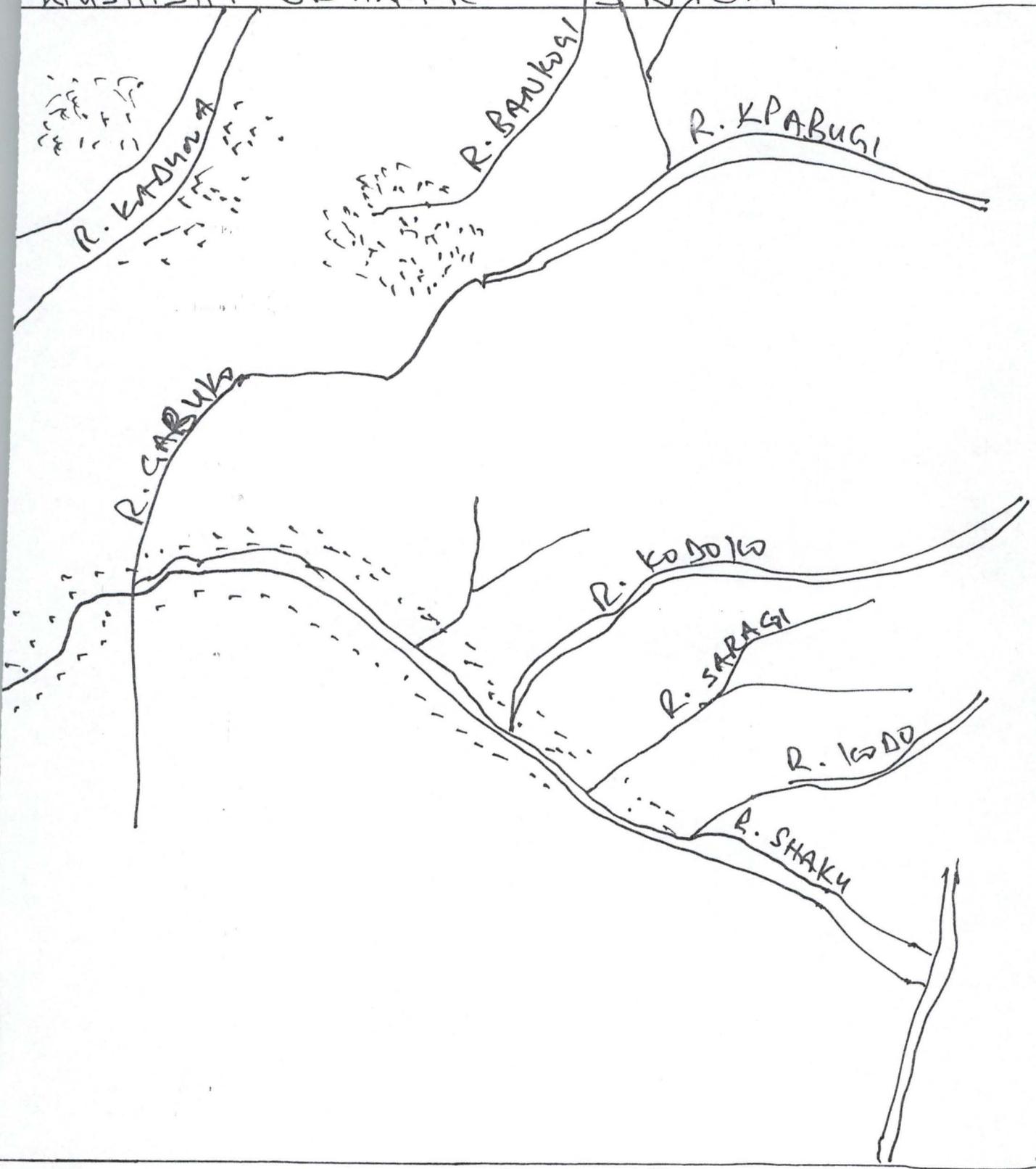
From the above, we could see that, it was not due to agricultural productivity or purpose that made the people to migrate but due to problems transportation and drinking water.

TABLE 4-3:- Difference between the two areas.

Area	Degree of Freedom (df)	Calculated Value	Table	Result
Old Kalakala	2	45.0	2.9	significance
New Kalakala	2	0.9	2.9	insignificance.

Source:- Based on the information received during the interview.

KIUSHISHI DRAINAGE SYSTEM



SOURCE:- FGD MIN. OF SURVEY 1967

From the above table, we could observe that old kalakala is more prosperous and productive than the new Kalakala or new settlement area. This was due to lack of good transport system. Likewise little or no attention is given to them by the state government, because they receive no agricultural loan, no clinic etc which made them to migrate to Pakara.

But the new settlement provides them with better means of transport such as road and rail. Like wise enjoy financial support by receiving agricultural loan. This was possible because, they migrate from their old settlement to Pakara where already settlement have been existing. So they were able to join the farmers union in order to benefit from the government.

But, this people still return to their previous farmlands near their the surrounding farmlands nears their new settlement are already occupied by the people in the settlement. So they have to travel for about five kilometres a day to their farmlands. So we could observe that, in this area, people migrated due to lack of financial assistance i.e. agricultural loan but not due to acquisition of new farmlands.

TABLE: 4 - 4:- Difference between old-Tukunji and new Tukunji

Area	Degree of Freedom (df)	Calculated Value	Table-Value T -Test	Result
Old Tukunji	3	1.1	2.3	insignificance
New Tukunji	5	60.5	2.0	significance

Source:- Personal knowledge of the area and based on the information supplied by the farmers interviewed.

It could be observed from the above table, that the previous settlement area old Tukunji is insignificant. This is because, the area has limited are able land for

farming. Most of the area is uncultivated hilly and rocky areas. As a result this made to previous settlement area less productive. They also face the problem of lacking drinking water and means of transport. See Figure 4-14

But the new settlement, it has available arable land for farming, more accessibly to drinking water and road as a means of transportation. It could be seen that rice is mostly produced in this area. This brought about commercialisation of agriculture where by abundant rice are transported either by road or rail to either Minna or any other area for sale.

From the above, we could see that, people in this area migrated from their previous settlement purely for agricultural reasons. They migrated to occupy land that are suitable for agriculture and have large areas of land.

TABLE: 4-5:- Show the difference between previous and present settlement areas.

Area	Degree of Freedom (df)	Calculated Value	Table-Value (T-Test)	Result
Maigora/ Arontagi	4	0.5	2.1	insignificance
Ami-woro	7	14.5	1.8	significance

Source:- Based on the information supplied by the farmers during interview.

From the above, we could observe that, the old settlement (Maigora / Arontagi) settlement areas were insignificance. This was due to lack of fertile land for farming. The whole area as been over cultivated They still face problem of lack of drinking water and means of transport.

But it could be seen that, in their present settlement, they are closer to main Wushishi Village, they enjoy some social amenities and access to roads, rail, basic health centre, fertiliser, agricultural loan, hire tractor etc. In terms of farming, they occupy large acres of land for farming. They produce rice and guinea corn for sale.

It could be seen that, large surpluses are produced which is meant for commercial purpose and subsistence in the present settlement area which made it more significant than the previous one. See Figure 4-14

TABLE 4-6:-To show difference between the previous old Loko-Goma and new Loko-Goma

Area	Degree of Freedom (df)	Calculated Value	Table Value (T-Test)	Result
Old Loko-Goma	4	0.3	2.1	insignificance
New Loko-Goma	6	3.2	1.9	significance

Source:- Based on the information supplied by the farmers during interview.

It could be observed from the above table that, the previous old - Loko-Goma settlement is insignificant. This is because of less productivity of the farm lands, thus was due to over cultivation of farm land year after year but faced the problem of exhaustion of soil fertility, which as a result the land can no more co-op with the increasing population. The old settlement also faced the problem of lacking of drinking water and means of transportation.

But the present settlement area, they have available arable land which permits them to produce Rice and Cassava for sell. Likewise they gain advantage of agricultural loan. The government constructed bore hole in which the problem of water shortage is solved. They are accessible to road transport, this is because the new settlement is along the main road between Zungeru to Bida. They form a linear settle-

ment along the main road. The execution of agricultural products to central markets are quicker with the aid of the main road.

So we could observe that the new settlement area is more prosperous in agriculture and more accessible compare to the previous settlement area.

TABLE 4-7: Showing the difference between source of migrates to present settlement Kwata.

Area	Degree of Freedom (df)	Calculated Value	Table Value (T-Test)	Result
Difference	4	1.0	2.1	insignificance
Kwata	7	62.4	1.8	significance

Source:- Information supplied during interview and personal knowledge of the area.

People came to the present settlement from different part of the state. There main occupation is fishing and farming. It could be observed empirically that this people in this settlement area engage in fishing and farming during rainy season. While during dry season, they focus their attention to fishing only. Fishing is one of their primary source of income. They transport fish and farm products to Minna for sell. They also use the Fadama areas around Kaduna river to cultivated and produce Rice. This people engage in commercialisation of Cassava, which are sold to women to produce Gari. This settlement is accessible both by canoes and road. This settlement area is one of the prosperous settlement areas in Wushishi district.

TABLE 4-8:- Showing the difference between old Tunga and new Tunga settlement area.

Area	Degree of Freedom (df)	Calculated Value	Table-Value (T-Test)	Result
Old Tunga	2	0.3	2.9	insignificance
New Tunga	4	4.3	2.1	significance

Source:- Information supplied by farmers during interview.

It could be observed that in the previous settlement, the area produce less agriculture, this was due to over cultivation and grassing. This was because, they were formerly residing in an isolated area, where by Fulani pastoralist disturb them either by eating away their fruit crops or over grazing which made the area insignificance.

But in there present settlement, they got available land which is more fertile and no Fulani disturbance. They also practise fishing as a profession. This is because, their present settlement is located near Kaduna river. Also they cultivate the Fadama areas to produce rice. So this area tends to be significant.

TABLE 4-9:- Showing the difference between old Madegi and New Madegi.

Area	Degree of Freedom (df)	Calculated Value	Table-Value (T-Test)	Result
Old Madegi	7	9.5	1.89	significance
New Madegi	9	0.3	1.83	insignificance

Source:- Through personal knowledge and information received.

It could be observed that, the previous settlement area is more significant that the present settlement area. This was due to the construction of Zungeru College of

advanced studies, which their former settlement areas and farm lands were taken over and little compensation was made to the people. This brought about, the whole Fadama and other farm lands under the jurisdiction of college. So they were forced to move to the other part of the area which is close to their former settlement area, where little farm lands were cultivated.

So from the above, we could see that, the former settlement area was more fertile compare to the present settlement. The present settlement lacks good arable land which will enable them to cultivate rice along the Fadama and Cassava which are meant for sale. The present settlement also lacks means of transport of any kind. They only depend on foot path before coming to the main road to get road transport.

TABLE 4-10 Difference before the establishment of the river basin development authority and after in Kanko

Area	Degree of Freedom (df)	Calculated Value	Table-Value (T-Test)	Result
Before R.B.D.A	7	106.3	1.89	significance
After R.B.D.A	8	112.6	1.86	significance

Source:- Through information supplied by the farmers during interview.

It would be observed that, before the establishment of R.B.D.A and after the establishment of R.B.D.A they all respond significantly. This was because, before the establishment of R.B.D.A the farmer have alot of farmlands which they produce Rice, Cassava and Millet for sell and sufficient food for home consumption. Likewise with the establishment of R.B.D.A more farmlands are cleared and cultivated. This is by opening of new farmlands by the Federal government under the R.B.D.A. The indigenous farmers were more accessible to fertiliser and adopted modern agricultural techniques which increase their productivity i.e. inter-cropping of Rice and Millet or Rice with Guinea corn. Also the R.B.D.A cultivate extensive farmlands

which were sold to the indigens of Wushishi district which must of them make profit out- of it.

From the above, we could observed that, the R.B.D.A. and the former farmers were working hand in hand to increase the productivity of the land. This is one of the major agricultural area in Wushishi district.

TABLE 4-11:- Before the R.B.D.A. and construction of dam and after in Bankogi

Area (Bankogi)	Degree of Freedom (df)	Calculated Value	Table-Value (T-Test)	Result
Before the dam & R.B.D.A	10	112.50	1.81	significance
After R.B.D.A.	12	110.61	1.78	significance

Source:- Through information supplied by the farmers during interview.

Before the construction of dam, the farmers produce some large amount of Rice. But with construction of Bankogi dam, much Fadama land was taken over which resulted to reducing the cultivation of Rice and Fishing activities.

However the R.B.D.A. opened new farmlands which made them to cope with their former production.

So we could observe that, with the construction of dam and establishment of R.B.D.A. there was considerable decrease in Rice and Fish production. But however newly opened farmlands brought about increase in productivity in food crops such as Cassava, Millet and Guinea corn.

TABLE 4-12 Showing the agricultural potentiality of Makusidi

Area (Makusidi)	Degree of Freedom (df)	Calculated Value	Table-Value (T-Test)	Result
Makusidi	8	115.3	12.6	significance

Source:- From the information supplied during the interview.

This area is very important as an agricultural settlement. This is because, the settlement has been existing for a long time without people migrating out. This was due to the natural fertility of the old soil to cope with the increase pressure of cultivation due to increase in family size. It could be observed that most of other settler migrate due to over-cultivation. Makusidi produces large amount of Rice due to the presence of Fadama, which permits the cultivation of Rice and Cassava which the local women produce for Gari. Also it has got a means of transport which is the untried road.

From the above, we could conclude that, people migrate from the place to another either due to over - cultivation which made the soil infertile as a result can't cope with increasing number of family sizes on due to lack of means of transport or water.

CHAPTER FIVE

5:1 SUGGESTIONS AND RECOMMENDATION

In order to prevent migration from one area to another, it would be good if proper financial aid and agricultural facilities are provided to the rural farmers, since they are the producers. They should be given proper financial aid and should be given during the appropriate time. This could be more better during rainy season. This is when farmers are busy in the farm, Their attention is focus on the farm. This is because by that time, no - marriage ceremony use to take place (it is more during dry season when farmers have to do when they engage in increasing number of wives, on the other hands, agricultural input such has fertiliser, peticide and insecticide, tractors, good roads should be provided in other to increase the agricultural productivity of the rural dwellers and has a result we shall have self sufficiency in food. It could be observe that, once a Governor of Niger State, Lt. Col David Mark in one of his speeches made mension that, Niger-State alone can feed the whole of Nigeria, when given the resources to do so. It is true, this is because Niger-State has a vast vargin land which are suitable for both northern and southern crops i.e. Yam, Cassava, Groundnut, Millet, Guinea corn Rice e.t.c are all productive in Niger-State.

Also the farmers have alot to do in other to reduce the rate of migration. It could be seen that, with proper knowledge of using fertiliser it will increase the productivity the land. It could be seen that with proper idea or knowledge of how to use feritliser, this will reduce the problem of exausion of soil feritility which is one of the causes of migration of settlements in the district. Also it will reduce the time period of shifting cultivation and bush following.

Secondly, when financial aid are received from the government i.e. agricultural loan etc they should be used solely on agricultural development instead of increasing

number of wives during dry season. The income gain during rainy season, it should be kept for kept for further agricultural development the following year.

Thirdly, there should be co-operation between farmers and cattle Fulani. Thus will solve the problem of overgrazing. Overgrazing brings waste of agricultural land by putting it out of use. This made the land wasterful. So with co-operation within local farmers and Fulani's this will reduce the problem of land waste which result to migration.

Lastly, having proper knowledge of planting and harvesting period. The declay in planting results low harvest. So with proper time of planting will result to proper harvest.

So if Wushishi rural settlement areas are provided with sufficient financial aid and agricultural facilities, it will solve the problem of migration, but farmers also have to work hard in other to improve their agricultural productivity, this is because of the present financial problem which the country is now facing presently. So the government financial condition cannot provide sufficient aid to the farmers but with the help of farmer the rural areas can achieve proper agricultural development within the rural areas.

5.2 SUMMARY AND CONCLUSION

Agriculture is the main activity in Wushishi rural settlement areas. The Basic agricultural system practised is the traditional one. It is characterised by family farms. Village labour and the use of little fertiliser.

There are two main agricultural system practised. We have the shifting cultivation and bush following. In terms of land tenure, each village is under the trusteeship of the village head. While the system of soil conservation varies from place to place within the rural areas.

So we could see that, the causes for the dispersal of rural settlements or the causes for the migrating of people from one settlement area to another is primarily based on agricultural reasons. It could be seen in most of the rural areas with surface name i.e old Kutunku and new Kutunku, Old Kalakala and new Kalakala etc.

They migrate primarily due to agricultural reasons. They migrate to areas with availability of farmlands, where they could be seen in old Kutunku to new Kutunku settlement area. While others due to over cultivation, which result to exhaustion of soil fertility which cannot cope with the expanding family size which brought about migration.

Another agricultural reason is the lack of transportation in some settlement areas, where by inputs such as fertiliser and source of labour becomes difficult, like wise means of executing of agricultural products becomes difficult. It could be seen that, i.e old Tukunji lacks means of transportation but the present which is nearer to both rail and road transport have solved the problem of lacking means of transporting agricultural product to near by areas for marketing i.e Zungeru, or Minna market. Also it allows the movement of labour into the settlement areas. Also lack of drinking water. People migrate to areas accessible to source of water.

In conclusion, as it could be seen, from the evaluation of different rural settlement areas, it would be observed that, the causes for the dispersal of rural settlements in Wushishi is caused by agriculture. This is because, from the origin of this rural settlement, they engage in nothing but depend on agriculture. But when later the natural fertility of the soil starts to decline and the demand for agricultural products starts to increase, most especially after the creation of Niger State in 1976, demand for agricultural products starts to increase, this was in order to feed the administrative, commercial and industrial sectors in the state. (See figure 5-2)

From the below table, we shall see, some of the rural settlements that migrated from their original settlements to the present settlement showing their agricultural potentials.

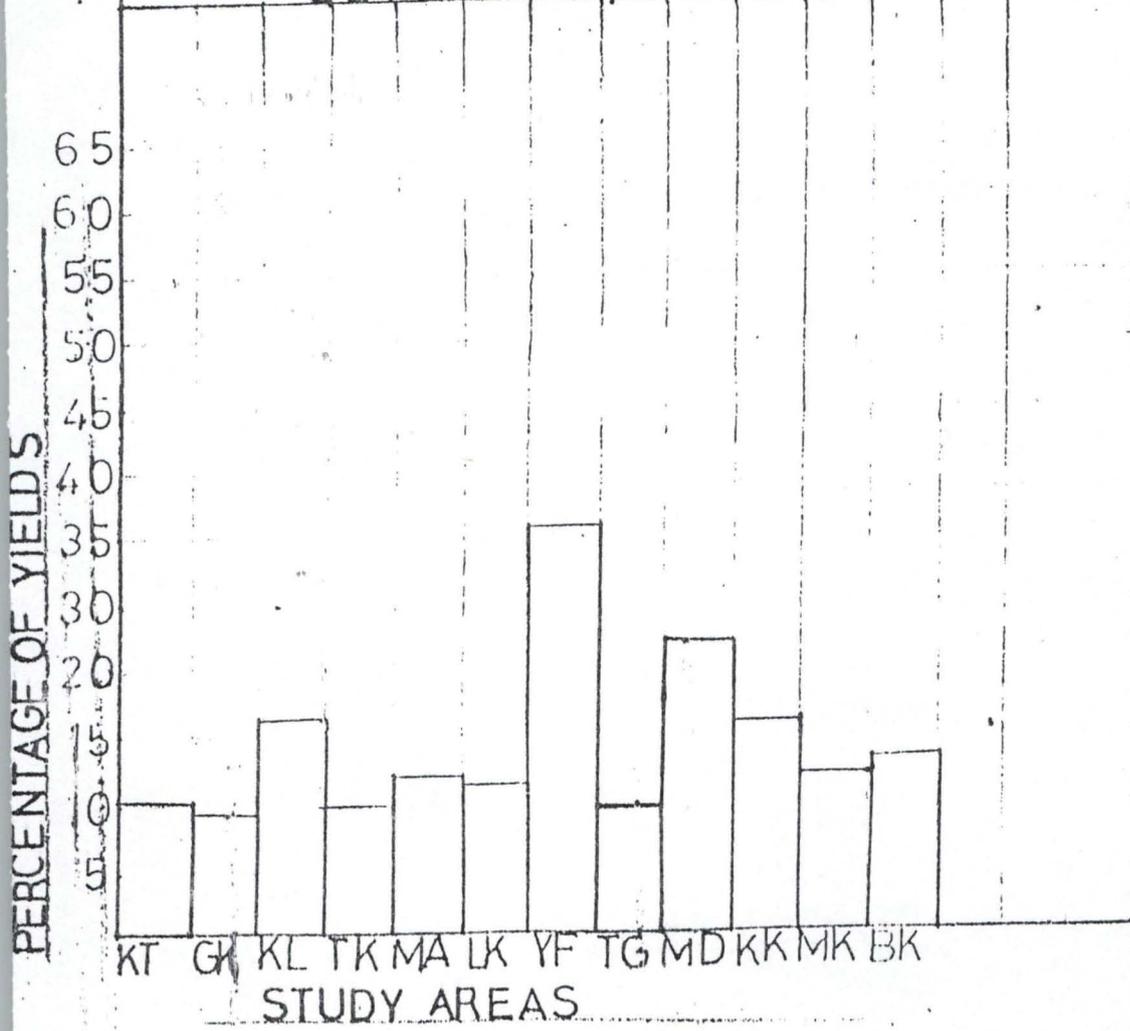
(Table 5-1)

Area (present)	(df)	Calculated Value	Table-Value (T-Test)	Result
New Gikun	3	0.9	2.3	insignificance
New Kutunku	3	70.9	2.3	significance
New Kalakala	2	0.9	2.9	insignificance
New Tukunji	5	60.5	2.0	significance
Ami-woro	7	64.5	1.8	significance
New Loko-Goma	6	3.2	1.9	significance
Kwata	7	63.4	1.8	significance
New Tunga	4	4.3	2.1	significance
Kanko	8	112.6	1.86	significance
Bankogi	12	110.61	1.78	significance
Makusidi	8	115.3	12.6	significance

Source:- From the information supplied by the farmer, personal knowledge and observation.

From the above table, it would be observe that, the present settlement areas, would be divided into two. This are those with significance and those with insignificance. Those with significance shows that with the migration from the previous settlement area to the present one, they were able to increase their agricultural production. This might be due acquiring new farm lands which has a great amount of soil fertility compared to previous ones which are exhausted due to over-cultivation and expansion of family side while on the other hand, those shows insignificance areas like, New-Kalakala, New Gekun, they migrated from, the previous settlement to the present due to other environmental problem like, lack of drinking water. Likewise socio-economic problem like lack of transportation. Where by agricultural products are produced but lack means of transporting them to the market.

FARM PRODUCTION IN PRESENT SETTLEMENTS FIG 4-15



SOURCE FIELDWORK 1984

FIG 4:15