THE IMPACT OF RURAL INFRASTRUCTURE ON SOCIAL DEVELOPMENT IN GIWA LOCAL GOVERNMENT AREA, KADUNA STATE, NIGERIA.

BY

Abubakar SALISU
M.Sc/SCIEN/10088/2007-08

BEING A THESIS SUBMITTED TO THE SCHOOLS OF POSTGRADUATE STUDIES AHMADU BELLO UNIVERSITY ZARIA, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER IN SCIENCE GEOGRAPHY

DEPARTMENT OF GEOGRAPHY
FACULTY OF SCIENCES
AHMADU BELLO UNIVERSITY, ZARIA.

November, 2012

Certification

This thesis titled " THE IMPACT OF RURAL INFRASTRUCTURE ON SOCIAL DEVELOPMENT IN GIWA LOCAL GOVERNMENT AREA" by **Salisu Abubakar** meets the regulations governing the award of the degree of Master of Science of Ahmadu Bello University and its contribution to knowledge.

Prof. J.A. Ariyo
Chairman Supervisory Committee _____ Sign _____ Date

Dr. Ibrahim J. Musa
Member Supervisor Committee _____ Sign _____ Date

Dr. Ibrahim J. Musa
Head of Department _____ Sign _____ Date

Prof. A.A. Joshua
Dean Post Graduate School _____ Sign _____ Date

Declaration

I here by declare that this thesis has been written by me and it is a record of my research work. It has not been presented for the award of any certificate. All the sources of information are specially acknowledged by means of references.

SALISU, Abubakar

Name Of Student	**Signature**	**Date**

Dedication

This project is dedicated to God Almighty ALLAH, my late mother, sister and brother may their souls rest in perfect peace. AMEEN.

Acknowledgements

First, I thank Almighty ALLAH for giving me the golden opportunity to be part of the M.Sc programme. I am sincerely grateful to my parents, Mal. Salisu Umar and late Malama. Sa'adatu Ibrahim as well as my brothers and sisters for their parental support and love.

I am dearly indebted to my supervisors particularly Prof J.A. Ariyo, the chairman of the supervisory committee, and Dr I.M. Jaro, the Head of Department of Geography who devotedly guided and patiently supervised this research work.

My gratitude also goes to all the staff of Geography Department, A.B.U. Zaria, especially Mr E. Bamaiyi, Mal. Lawal, Mrs Nya, Mal. Saddiq. I am very grateful to my lectures for the invaluable knowledge they have imparted on me, especially Prof. I.A Jaiyeoba, Prof. E.O. Iguisi and Dr. J.G. Laah. I cannot forget my well meaning friends and colleagues in the person of Samaila Garba, Anslem Bako, Mathew John, SMZ, Mal. Muhammad Jameel, Usman Isyaku, Mal. A. Jibril, Japhet Gwamna and Muhammad Akhadelor Oyale. May Allah make the best for all of us once more. I appreciate the cooperation given to me by the head of works department, Giwa local government area.

Finally, despite all the excellent supervision rendered by Prof. J.A Ariyo and Dr. I.M. Jaro and the numerous assistance received from different individuals, I should be held responsible for any error that might have crept into the study.

Abstract

This study attempts to assesses the extent to which rural infrastructure impact on social development in Giwa local government area of Kaduna State. It determines the distribution pattern of the available infrastructural facilities with a view to making appropriate recommendations for even development. To achieve this aim, 384 questionnaires were administered to respondents in the eleven wards of the local government area. Because the population size in the wards was not uniform, the questionnaires for each ward (stratum) was administered in proportion to the population size of the ward using a method called proportional allocation. The score for level social development (LSD) for each ward was obtained using the available rural infrastructural facilities. Also, Location Quotients was used to determine the concentration of infrastructure in each ward; this was found to be inadequate and unevenly distributed. Statistically, multiple regression analysis was used to determine the strength of the relationship between rural infrastructure and social development; the coefficient of correlation R^2 was found to be 0.9986; meaning that the degree to which level of social development (dependent (Y) variable) is related to rural infrastructure (independent (X) variables) is quite strong and positive. The result of the multiple regression analysis reveals five out of seven indicators that significantly contribute to social development in the study area. It is recommended that deliberate efforts should be made by government to change its policies concerning the provision of infrastructural facilities in the study area by focusing more on adequacy and even distribution.

TABLE OF CONTENT

		Page
Title Page		i
Certification		ii
Declaration		iii
Dedication		iv
Acknowledgements		v
Abstract		vi
Table of Content		vii
List of Tables		viii
List of Figures		ix
List of Plates		x
CHAPTER ONE : INTRODUCTION		
1.1	Introduction	1
1.2	The research problem	4
1.3	Study Aim and Objectives	5
1.4	Hypothesis	5
1.5	Scope and Limited	5
1.6	Justification of the study	6
CHAPTER TWO : CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW		
2.1	Conceptual framework on rural development	7
2.2	The concept of social development	9
2.3	Socio-economic effect of infrastructure	11
2.4	The role of infrastructure in rural development	14
2.4.1	The health of rural populations - open to challenge	14
2.4.2	Education	16
2.4.3	Transportation	17
2.4.4	Information Communications Technology	20
2.4.4.1	Mobile phones and economic development	22
2.4.4.2	Mobile phones and social development	22
2.5	Impact of rural infrastructure on social development in Nigeria	23
CHAPTER THREE : RESEARCH METHODOLOGY		
3.1	Types of data required	27
3.1.1	Primary data	27
3.1.2	Secondary data	27
3.2	Sampling method	28
3.3	Method of data analysis	29
CHAPTER FOUR : THE STUDY AREA		
4.1	Background information	35
4.2	Physical setting	35
4.2.1	Location	35
4.2.2	Climate	35
4.2.3	Soils	36
4.2.4	Relief	36
4.2.5	Vegetation	37
4.3	Human setting	37
4.3.1	Population structure and distribution	37
4.3.2	Economic activities	38
4.3.3	Infrastructural facilities	38

CHAPTER FIVE: DATA PRESENTATION AND ANALYSIS
5.1 Introduction 43
5.2 Background of the respondents 43
5.3 Educational infrastructure 48
5.4 Commercial infrastructure 55
5.5 Administrative infrastructure 63
5.6 Public utilities 68
5.6.1 Electricity 70
5.6.1 Water supply 74
5.7 Transport and communication infrastructure 78
5.8 Health infrastructure 88
5.9 Recreational infrastructure 97
5.10 The spatial manifestation of social development in the study area 102
CHAPTER SIX : SUMMARY, CONCLUSION AND RECOMMENDATIONS
6.1 Summary 107
6.2 Conclusion 108
6.3 Recommendations 109
References 111
Appendix 118

List of Tables

		Page
Table 3.1	List of facilities used in assessing the level of social development	30
Table 3.2	Infrastructural facilities and the corresponding Social indicators	32
Table 5.1	Age distribution of the respondents	43
Table 5.2	Gender distribution of the respondents	44
Table 5.3a	Distribution of respondents by educational qualification (Lower level)	45
Table 5.3b	Distribution of respondents by educational qualification (Higher level)	46
Table 5.4a	Major occupation of the respondents	47
Table 5.4b	Other sources of income for the respondents	47
Table 5.5	Distribution of schools by ward in Giwa L.G.A	49
Table 5.6	Distance of primary schools from respondents' residents	50
Table 5.7	Distance of secondary schools from respondents' residence	52
Table 5.8	The impacts of school on social development	54
Table 5.9	Distribution of commercial facilities by ward in Giwa L.G.A	55
Table 5.10	Market patronage by the respondents	57
Table 5.11	Bank patronage by the respondents	58
Table 5.12	Nature of transaction with the bank	59
Table 5.13	The impacts of market on social development	61
Table 5.14	The impacts of bank on social development	62
Table 5.15	Distribution of administrative facilities by ward in Giwa L.G	63
Table 5.16	The impacts of local government office on social development	64
Table 5.17	The impacts of police station/post on social development	65
Table 5.18	The impacts of court on social development	66
Table 5.19	Public utilities by ward in Giwa L.G.A	68
Table 5.20	Usage of electricity by the respondents	70
Table 5.21	Use of alternative energy	71
Table 5.22	Respondents' willingness to pay more if electricity supply is steadied	72
Table 5.23	The impacts of electricity on social development	73
Table 5.24	Sources of water	74
Table 5.25	Proximity to sources of water	75
Table 5.26	The impacts of water sources on social development	77
Table 5.27	Distribution of transport and communication facilities By ward in Giwa L.G.A	78
Table 5.28	Summary of ownership/use of modes of transportation	79
Table 5.29	Proximity to motorable road	81
Table 5.30	The impacts of road on social development	83
Table 5.31	Distribution of respondents according to GSM services used	84
Table 5.32	Distribution of respondents according to type of GSM calls	85
Table 5.33	The impacts of GSM on social development	87
Table 5.34	Distribution of health facilities by ward in Giwa L.G.A	88
Table 5.35	Proximity to health facilities	89
Table 5.36a	Responses on the availability of staff in the health care centres	90
Table 5.36b	Responses on attention of staff to patients in the Health care centres	91

Table 5.36c	Availability of drugs	92
Table 5.36d	Availability of space for patients	93
Table 5.36e	Responses on the level of cleanliness of the health facilities	94
Table 5.37	The impacts of health facilities on social development	96
Table 5.38	Distribution of recreational facilities by ward in Giwa L.G	97
Table 5.39	Patronage of recreational facilities	98
Table 5.40	The impacts of recreational facilities on social development	101
Table 5.41	Social development indicators by ward in Giwa L.G.A	103
Table 5.42	Regression of rural infrastructure on social development indicators	104

List of Figures

		Page
Figure 3.1	An indicator system for assessing the impact of rural Infrastructure on social development	33
Figure 4.1	Location of Giwa L.G.A in Kaduna State	41
Figure 4.2	Wards and their location in Giwa L.G.A	42
Figure 5.1	A pictorial view of other sources of income	48
Figure 5.2	Distribution of schools by ward in Giwa L.G.A	53
Figure 5.3	Distribution of markets and banks by ward in Giwa L.G.A	60
Figure 5.4	Distribution of administrative facilities by ward in Giwa L.G.A	67
Figure 5.5	Distribution of public facilities by ward in Giwa L.G.A	76
Figure 5.6	Road transport networks in Giwa L.G.A	82
Figure 5.7	Distribution of telecommunication facilities by ward in Giwa L.G	88
Figure 5.8	Distribution of health facilities by ward in Giwa L.G.A	95
Figure 5.9	Distribution of recreational facilities by ward in Giwa L.G.A	100

List of Plates

		Page
Plate I	A primary school at Kadage ward	40
Plate II	A classroom without adequate seats for students at Dan Mahawayi ward	51
Plate III	Giwa periodic market located at Giwa ward	56
Plate IV	A bank at Giwa ward	58
Plate V	A borehole at DanMahawayi ward	69
Plate VI	Untarred road at Fan Hauya ward	80
Plate VII	A primary Healthcare centre at Galadimawa ward	89
Plate VIII	TV viewing centre at Shika ward	98

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study and the Research Problem

"The Tempo of development in a nation depends very largely on the extent of infrastructural development. Without adequate infrastructure all social, economic and political programmes are likely to come to grief" (Adefolalu, 1982).

The above statement underscores the critical role of infrastructure in the development process which can be likened to secondary and tertiary arteries of the body system which are as crucial as the main arteries for blood circulation (PCU-NFDO, 2005). Infrastructural facilities refer to those basic services without which primary, secondary and tertiary productive activities cannot be performed. In its wider sense, infrastructural facilities embrace all public services from law and order through education and public health to transportation, communications and water supply (Mabogunje, 1974; Kahn, 1979). In other words, infrastructural facilities are elements in the package of basic needs, which a community would like to procure for better living. Kahn (1979) asserts that rural infrastructural facilities can be classified into three main types; namely, physical infrastructure – such as roads, water, rural electrification, storage and processing facilities; social infrastructure –namely, health and educational facilities, community centres, fire and security services; institutional infrastructure which include credit, financial institutions and agricultural research facilities, among others.

Similarly, Idachaba (1981) classified rural basic needs into physical infrastructure i,e. roads, storage facilities, irrigation facilities and agro-service centres; social infrastructure namely medical facilities, water supply, electricity supply and educational institutions; and lastly, institutional infrastructure which includes cooperative societies, postal services, market facilities, banking services and agricultural extension services. Social infrastructure such as health, education and recreation have both direct and indirect impacts on the quality of life.

Directly, it supports production and trade. Indirectly, it leads to improved productivity which in turn leads to higher real incomes (Budlender *et al*, 1998; DBSA, 1998).

In Nigeria as in most other developing nations the interest of researchers and planners in aspects of rural development is very much concentrated on economic growth, measured with such indicators as the aggregate output of agricultural produce and income per capita. Using these indicators attempts have been made to measure the spatial differentials in rural development and to monitor the pace of modernization. The common feature of such a rural development surface is that development is delineated along the bold lines of economic indicators and physical infrastructure (Okafor,1985).

According to Diane (1993) there is widespread agreement that any kind of rural development policy or programme should consider the social as well as the economic aspects of development in rural areas. There are two main arguments in favour of this. One is that the social and economic aspects of development are so closely related that one cannot pursue one aspect without also considering the other. The other argument is that, irrespective of its relationship to economic development, 'social development' is a desirable objective in its own right. There are two main ways of defining 'social' which are commonly used. One is what might be called the 'holistic' approach, which defines 'social' as anything relating to people or society. This is a very broad definition, which could include most aspects of rural development, in so far as rural development implies the development of rural people or rural societies. The other is most appropriately known as the 'residual' approach since it defines 'social' as anything which is not 'economic'.

For the purposes of this research, however, the term 'social development' or the ‘social aspects’ of development will be used to mean positive changes in relation to any of the issues or activities defined as 'social', (Diane, 1993) notably:

- **the 'social' characteristics** of an area or society, including the demographic structure (eg. size and density of population, age and sex structure, household structure and composition), ethnic characteristics, social structure (eg. leadership structures; class, caste or other social divisions), religious and cultural beliefs and practices, and general attitudes;
- **the general quality of life** in an area or society, which comprises a number of different factors, including some (eg. income) which are 'economic' in nature but have wider implications in the sense that they influence other aspects of life (eg. income affects health, nutrition, access to various goods and services, leisure activities and the ability to choose between alternative lifestyles, all of which are important components of the quality of life);
- **social services** (eg. health, education, water and sanitation, welfare benefits), which contribute to the general quality of life; and
- **social justice**, which includes issues related to equity, human rights and participation in decision-making, all of which are again part of the overall quality of life.

Measuring the level of social development of a settlement or society at a given point in time is very important because there are vari00pation and disparities in the distribution, accessibility and utilization of infrastructural facilities. In order to do this, appropriate social indicators should be measured to give a good indication of the degree or level of social development (Diane, 1993). For example, there are some fairly obvious and generally accepted indicators of quality of life (eg. per capita income; infant mortality; food consumption; quality of housing) and of access to social services (e.g. distance to the nearest school, health facility or water supply; school attendance; population per doctor) (Diane,

1993). In Nigeria and in Kaduna State in particular, the spatial variation in the availability and access to rural infrastructure results in spatial disparities in living standards both within and between regions and localities. Inequalities exist between spatial units as they do between individuals (Anderson and Pomfret, 2004; Henderson, Shalizi, and Venables, 2001; Kanbur and Venables, 2005). The existence of disparities in living standards of rural people makes the assessment of the impact of rural infrastructure on social development imperative. Only through such an assessment can a major cause of the imbalance in rural development be understood.

1.2 The Research Problem

There is one very important general point which applies to all aspects of social development which is the fact that social development should be seen not as a mechanistic operation but as a process which involves people and their modes of life. This has several implications in terms of the overall approach to rural development programmes and projects (Diane, 1993). Giwa Local Government is more of a rural area and therefore the problem of inadequacy or inequitable distribution of rural infrastructure should be expected. However, using the available rural infrastructure in the local government which includes roads, health care facilities, markets as well as recreational facilities and so on, the study attempt to assess the impact of these rural infrastructures on the social life of the people living in Giwa Local Government. In other words, the central problem of this research is to determine the extent to which the available rural infrastructure impact on social development in the local government. Without this basic understanding we cannot bring about practical solution to the problems of rural underdevelopment, poor accessibility, poverty, inequality as well as migration.

1.3 Study Aim and Objectives

The aim of the study is to assess the impact of rural infrastructure on social development in Giwa Local Government Area. The aim will be achieved through the following specific objectives:

1. To develop an inventory of the available rural infrastructure in Giwa Local Government Area
2. To determine the spatial distribution pattern of rural infrastructure in the study area
3. To determine the relationship between rural infrastructure and level of social development in the study area

1.4 Hypothesis

There is no significant relationship between rural infrastructural facilities and social development in Giwa LGA.

1.5 Scope and Limitation

The study is limited to Giwa Local Government Area, located between latitude 10°50'N and 11°25'N and longitude 7°15'E and 7°28'E (Fig.1 and 2). The Giwa Local Government Area has a total number of 11 wards. A survey was conducted to take an inventory of the rural infrastructure available in the different wards. However, this study was limited to the impact of the following infrastructure on rural development namely; commercial, education, administration, public utility, recreation, health, transport and communication infrastructure.

1.6 Justification of the Study

A survey of existing literature has revealed that a lot of studies have been conducted on rural infrastructure and services in Nigeria. For example, Madu (2007) investigated the underlying factors of rural development pattern in the Nsukka Region of southeastern Nigeria. He was able to determine the strength of the various underlying factors by using factor analysis, and concluded that four factors (rural markets, land resources, accessibility and the influence of local government administration) accounted for more than 70% of the total variance.

Similarly, Ajala and Adeyinka (2005) indicated in their study of accessibility to healthcare facilities in Osun State, that serious inadequacy of health facilities and services exists in rural areas which results in many preventable deaths among rural people. Other studies carried out on rural infrastructure and services include that of Olayiwola and Adeleye (2005) in which they investigated and documented a comprehensive report on rural infrastructural development in Nigeria between 1960 and 1990 pointing out the problems and challenges.

All these studies examined and explained the problem of rural infrastructure and services while focusing more on either the availability of the physical infrastructure or their spatial distribution. The 'social aspects' of development which is always referred to as positive changes in relation to social conditions has received little attention. This research therefore serves as a guideline focusing on the social aspects of rural development planning at local level. It can be used as part of a broader planning approach, which recognizes the linkages between social and economic issues, between rural and urban areas, and between national, district and local planning.

CHAPTER TWO

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

2.1 Conceptual Framework on Rural Development

Although policy makers and the development community have widely used the phrase "rural development," what constitutes rural development seems to have changed significantly over time. How did the concept of "rural development" evolve over time in the past three decades? What does "inclusive rural development" mean? Addressing these two basic interrelated questions is important to put the issues relating to inclusive rural development in perspective. According to Harris (1982); Chambers (1983) and ADB (2000) the concept of rural development has changed significantly during the last three decades. Until the 1970s, rural development was synonymous with agricultural development and, hence, focused on increasing agricultural productivity. This focus seems to have been driven primarily by the interests of industrialization to extract surpluses from the agriculture sector to reinforce industrialization. Francks *et al* (1999) observed that, with the focus on increasing agricultural production, the stated objective of most countries was to promote smallholder agriculture. Over time, this smallholder agriculture-centric concept of rural development underwent changes.

By the early 1980s, according to Harris (1982), the World Bank defined rural development as "…a strategy designed to improve the economic and social life of a specific group of people—the rural poor." Four major factors appear to have influenced the change: increased concerns about the persistent and deepening of rural poverty; changing views on the meaning of the concept of development itself; emergence of a more diversified rural economy in which rural nonfarm enterprises play an increasingly important role; and increased recognition of the importance of reducing the non-income dimensions of poverty to achieve sustainable improvements in the socioeconomic well-being of the poor. The establishment of

the Millennium Development Goals has significantly reinforced the concerns about non-income poverty. With the paradigm shifts in economic development from growth to broadly defined "development," the concept of rural development has begun to be used in a broader sense. It is also more specific, as Harris (1982) noted "in the sense that it focuses (in its rhetoric, and in principle) particularly on poverty and inequality." In more recent years, increased concern on the environmental aspects of economic growth have also influenced the changes.

Harris (1983) added that today's concept of rural development is fundamentally different from that used about three or four decades ago. The concept now encompasses "concerns that go well beyond improvements in growth, income, and output. The concerns include an assessment of changes in the quality of life, broadly defined to include improvement in health and nutrition, education, environmentally safe living conditions, and reduction in gender and income inequalities." According to Chino (2000) there seems to be a universal consensus today that the ultimate objective of rural development is to improve the quality of life of rural people. This makes it essential to go beyond the income-related factors such as prices, production, and productivity to a range of non-income factors that influence quality of life and hence inclusiveness of rural development.

Inclusive rural development is a more specific concept than the concept of rural development. In broad terms, inclusive rural development is about improving the quality of life of all members of rural society. More specifically, inclusive rural development covers three different but interrelated dimensions (UNDP, 2005). The first is the economic dimension that encompasses providing both capacity and opportunities for the poor and low-income rural households in particular to benefit from the economic growth process in such a way that their average incomes grow at a higher rate than the growth of average incomes in the sector as a whole. The economic dimension also includes measures to reduce intra- and

inter-sectoral income inequalities to reasonable levels. Second is the social dimension of supporting social development of poor and low-income households and disadvantaged groups, eliminating inequalities in social indicators, promoting gender equality and women's empowerment, and providing social safety nets for vulnerable groups. Third is the political dimension of improving opportunities for the poor and low-income people in rural areas, including women and ethnic minorities, to effectively and equally participate in the political processes at the village level and beyond compared with any other categories of the population within and outside rural areas.

2.2 The Concept of Social Development

According to Reutlinger and Homfeldt (2009) a number of models have been formulated to describe development. Generally, these start off with a state of no development, and then go on to contrast this with a second state: some kind of plan or blueprint for development. As a result, the process of development is equated with a series of completed stages. Like having to climb the steps of a ladder, one moves up and up in order to become more and more developed. The associated catching-up processes are then frequently described with phase models. ln contrast to such goal-directed perspectives on development with their links to modernization theory, social development pursues an alternative approach focusing on the empowerment and autonomy of actors, and also taking account of the structural obstacles that confront them as they shape their daily lives in the sense of learning to develop themselves (Reutlinger and Homfeldt, 2009). This means that development is always conceived within a twin framework of self- and other-development. Social development therefore represents a holistic approach that is non-static and process-oriented.

Midgley (1995) has had a decisive impact on the international discussion on social development as a "process of planned social change designed to promote the well-being of the population as a whole in conjunction with a dynamic process of economic development"

(Midgley 1995). The goal of social development in the context of modern welfare is to produce a social well-being that makes people capable of acting and making their own decisions in the broadest sense. Midgley's definition of social development "as a process of promoting people's welfare" can be elucidated as an enabling perspective, because it focuses attention on the potentials for action without forgetting the structural constraints to which actors are subjected. The strengths of social development lie in the fact that its intervention strategies address the macro-, meso-, and microlevels. This means that it draws local communities into its strategy packages just as much as governments and international organizations.

Reutlinger and Homfeldt (2009) added that social development first attracted widespread attention through the principles set out in the Millennium Development Goals (MGD) of the United Nations in1995 (the Copenhagen Declaration – "World Summit for Social Development"). These revealed how social development should serve to build up egalitarian and solidaristic communities and create societies in which human beings can live together in peace and in which their basic rights are respected. Although peaceful coexistence and the sanctity of human dignity enjoy general recognition throughout the world, they continue to be circumvented on a number of different levels—for example, in western nations that export their values without always applying them at home. Cox and Pawar (2006) finally conceptualised social development as not just restricted to specific target groups such as the poor and migrants. Fundamentally, equal access to society's goods (such as health or education) should be available for all. Equal participation should provide everybody with opportunities for fulfilment. Even when an education programme is targeted specifically at the poor and disadvantaged, its implications always have to be viewed in relation to society as a whole. The same applies to, for example, micro-credits for the poor and disadvantaged. Cox and Pawar (*Ibid*) opine that although social development aims to promote the social and

economic well-being of societies or social groups, such units are always composed of individual actors. From a reflexive perspective, social development is conceived as development of the individual human being and is therefore associated with self-development. It stands for making specific individuals capable of acting, who then, with the help of participation, serve as motors to drive forward the economic and social well-being of the community as a whole. Under headings such as capacity building and capacity development, this goal of enabling people to act is often viewed macro-socially and linked to institutionalized forms of cooperative development.

2.3 Socio-Economic Effect of Infrastructure

Recently many studies on issues of infrastructure have been published and the reason for this is the intensive investments of governments on infrastructure . Effective infrastructure supply supports economic growth, enhances quality of life and it is important for national security (Baldwin, Dixon, 2008). Researchers analyse the effect of infrastructure on various aspects: regional competitiveness, economic growth, income inequality, output, labour productivity and welfare. Bristow and Nellthorp (2000) define three main impacts of infrastructure, describing, that infrastructure has not only a visible effect on environment but also directly impacts on welfare (by time and cost savings, increasing safety, information network development) and the economy (employment, economic growth). Public infrastructure enables geographic concentration of economic resources and provides wider and deeper markets for output and employment (Gu and Macdonald, 2009). It affects input and output markets, helps determine spatial development patterns and provides a large network to individual users at low cost. Public infrastructure can be generally understood as the foundation upon which the economy is built (Macdonald, 2008).

Nijkamp (1986) argues that infrastructure is one of the instruments to improve development of a region, though it can influence in a direct or an indirect way the socio-economic activities

and other regional potentiality as well as production factors. Infrastructure policy is conditional policy for regional development: it does not guarantee regional competiveness but it creates necessary conditions for the achievement of regional development goals. Snieska and Draksaite (2007) argue that economy competitiveness of a country is determined by a set of different factors, and indicators of infrastructure are one of them. Snieska and Bruneckiene (2009) identify infrastructure as one of the indicators of regional competitiveness within the country. They refer to physical infrastructure (consisting of transport infrastructure, ITT, newly built estate, outer reach of a region by land, air and water) as an indicator of factors of production that promotes regional competitiveness. Martinkus and Lukasevicius (2008) argue that infrastructure services and physical infrastructure are factors which influence investment envinronment on the local level and increase its attractiveness.

Grundey (2008), Burinskiene and Rudzkiene (2009) analyse the implementation process of sustainable development policy and distinguish development of infrastructure as one of the most important dimensions in strategic planning in order to assure sustainable territorial and socioeconomic development of a country. Aschauer (1998) argues that public infrastructure underpins the quality of life: better roads reduce accidents and improve public safety, water systems reduce the level of diseases, waste management improves health and aesthetics of environment. Agénor and Moreno-Dodson (2006) study the link between infrastructure availability and health as well as education of society that proves that infrastructure services are crucial for health and education quality and availability which to a big extent effects welfare.

According to the world statistical analysis, households use approximately one third and one half of infrastructure services as final consumption. The other half of infrastructure services correspond to intermediate consumption, mostly by companies (Foster, 2005).

Another important thing is that basic services such as water and electricity often occupy a significant fraction of poor households' budgets.

The findings of Demetriades and Mamuneas (2000) suggest that public infrastructure capital has significant positive effects on profit in 12 OECD countries. Macdonald (2008) analysed the impact of public infrastructure on private production level that has been overlooked in other researches and found out that a private infrastructure provided a vital input for private sector production. The analysis of recent empirical literature has confirmed the significant contribution of infrastructure to socio-economic development. But the results are not consistent as they are dependent on technique used in the analysis. Theoretical researchers do not agree about infrastructure's effect on the growth of a country: they use various methods and models for evaluation. The analysis of scientific literature allows summarizing that there is variation in empirical results testing the relationship between infrastructure and socio-economic development.

Not all studies find growth-enhancing effect of infrastructure; in some sources there is evidence of reverse causation found. For example, Aschauer (2000) finds that the stock of public infrastructure capital is a significant determinant of aggregate total factor of productivity and that investments in public sector not only improve quality of life but also increase economic growth and returns for private investments; Calderón and Servén (2004) estimated that indicators of telecommunication and energy infrastructure have a positive and significant effect on growth. The results of Seethepalli *et al* (2008) study also prove that that infrastructure is important for promoting growth. Li and Li (2008) argue that infrastructure investment is very important to boost national economic growth and prove this with the results of infrastructure investment and the GDP in China from 1997 to 2006.

2.4 The Role of Infrastructure in Rural Development

The fundamental importance of infrastructure in rural development cannot be overestimated (ADB *et al,* 2005 and Cook *et al*, 2005). There are clear cross-country differences in the level and quality of rural development between those that developed rural infrastructure and those that neglected to do so. Similar differences in rural development also exist within countries. People in areas with better rural infrastructure have been able to participate in and share the benefits of growth widely. Jalan and Ravallion (2002) noted that the differences in rural infrastructure across counties have strong explanatory power for subsequent consumption growth at the farm household level in rural China. The impact of high quality rural infrastructure on the quality of life of the rural population can be substantial. Infrastructure contributes to inclusive rural development in many different ways. First, rural infrastructure provides rural people with access to the markets and basic services that they need. Second, it influences rural economic growth and employment opportunities and thereby incomes and social development. For example, "good feeder roads can allow the supply of perishable foods to high-value urban markets, and the income generated can be invested in health and education to improve the productivity of eventual migrants to the cities" (ADB, 2005).

2.4.1 The health of rural populations - open to challenge

A number of studies have sought to analyse health, illness and healthcare in rural Britain (Deaville *et al*, 2002), to provide international comparisons (Higgs, 1999), or to specialise in describing specific areas of rural healthcare, for example, rural primary healthcare (Deaville, 2001). Health research has focused predominantly on urban health issues, deprivation and inner city inequalities, reflecting the dominance of urban life on society. The assumption that rural areas exhibit better levels of health is however increasingly

open to challenge (Deaville *et al*, 2002), and warrants continued research to develop a better understanding of the health, well being and healthcare needs of rural communities.

Rural communities generally have poorer geographical access to services. Many rural patients, particularly those who are less mobile, face considerable difficulty in getting to essential services. The distance that rural patients live from primary care and hospital services has been found to have a profound effect on their likely use of such services. This 'distance decay effect' has resulted in rural patients showing lower levels of health services utilisation than their urbancounterparts (Jones *et al* 1998).

According to Erinosho (1980) healthcare provision in underdeveloped countries (e.g. Nigeria) serves the indigenous middle and upper classes more by providing them medical care that is a replica of those in developed countries, in that the forces of demand and supply are given a free rein. Here, the system often encourages division between the weak and the strong as well as between the poor and the rich. The capitalist economy is one in which government can only interfere minimally by providing the policy thrust. Certain deductions can be made from the above, that is, this pattern undermines the overall health interest of the common people in that healthcare, in this form, is for the highest bidder. Also, the healthcare system would benefit the elite more than the plebeians. No wonder, emphasis is always more on the curative than preventive healthcare. The curative serves the elite, whereas the preventive serves the poor (Pearce, 2001; Erinosho, 2006; Adebanjo *et al*., 2006).

Not surprising other social amenities like water, electricity and good roads were also allocated in this manner (Aluko-Arowolo, 2005). For instance, a break-down of provision of potable water shows that 67% was allocated to urban centres, especially state capitals, 60% to other urban settlements, while 50% was to the semi-urban and 55% to rural areas (WHO, 2006).

2.4.2 Education

There is little dispute that basic education often characterized as the reading, math, and other skills and knowledge taught in the first four years of primary school—is critical to economic and social development. Without basic skills, according to one observation, a person cannot comprehend the instructions on a bottle of medicine or a bag of fertilizer or read a government notice. Neither can the person compute a bill or write a letter. Without basic skills, it is impossible to develop one's potential or to contribute to anything more than a rudimentary manner to society (Greaney, 1999).

Why should a rural development programme be concerned with basic education and primary schools? The importance of basic education to improving individual lives has been argued from various perspectives. From a narrow perspective of agricultural improvements, basic education improves farmer productivity. From a somewhat broader perspective of rural development, it facilitates off-farm employment and the economic development of rural areas. That universal or widespread basic education is a key factor in national development can be seen in comparisons between the rate of primary education in countries that have had high economic growth rates (mainly in East Asia) and those that have not (mainly in South Asia and Africa). World Bank economists and others have argued that economic data demonstrate higher returns on investments in primary education than in secondary or tertiary education (Psacharopoulos, 1991). Basic education is also a factor in alleviating poverty.

There are various explanations of why schooling contributes to economic productivity (Carnoy, 1994). These include the following.

- Individuals acquire skills in school that enable them to be more productive.
- What individuals learn in school makes them more likely to adopt new technologies and practices.

- Schooling helps individuals function more effectively in modern production organizations.
- Schools socialize people into functioning effectively in modern society.
- The discipline of learning taught in school helps individuals learn new skills outside of school.

Whatever one or combination of these explanations may be accurate, there is little dispute that some years of schooling—a threshold level is hard to define—contributes substantially to individual and thus to social and economic development.

2.4.3 Transportation

Rural transport infrastructure consists mainly of rural roads, tracks, trails and footpaths. These may vary in quality, depending on weather, season, construction and maintenance. As rural households, and in particular women, spend a large amount of time and effort on transport activities to fulfil their basic needs, they are very often severely hampered by the lack of an adequate rural road network. As a result of this significant limitations of growth and development of rural communities have been experienced in the past, and are also being experienced today. Poverty is very often far worse in rural areas than in urban centers, as a result of lack of integration with urban centers due to lack of adequate accessibility and mobility, and local roads and tracks are often impassable, thereby proving it very difficult and in some cases nearly impossible for rural families to have access to the local rural economy.

Rural roads play a major role in facilitating and enabling access to socioeconomic centers in rural areas and ultimately contribute to achieving equity in a country.

A socio-economic impact assessment was recently carried out regarding feeder road improvements in the Copperbelt of Zambia [Africon 2004]. The assessment focused on the

current situation in the Copperbelt Province and the project areas, and investigated the impact that improvements to the feeder road network could have on the socio-economics.

The socio-economic assessment also focused on labour-based construction and maintenance of the feeder road improvements, with the view on especially employing people living in the catchment areas. The study indicated that economic activities involve self employment among both men and women, and constitute a wide range of economic activities such as trading, logging, saw milling, carpentry, wood fuel selling, vending, beer brewing, baking, sewing, knitting and vending in makeshift markets. Agriculture is seen as an alternative economic activity to mining, for economic growth. To enhance agricultural production, communities have also been encouraged to form co-operatives. The study indicated that many individual farmers organize their own transport to marketplaces in the urban centres due to a lack of a mechanism such as an agricultural marketing board to coordinate the collection and transportation of agricultural produce to the markets. Subsistence farmers usually transport their produce on bicycles. As they are not able to transport much on a bicycle, subsistence farmers are not able to make much profit on their produce. Areas without feeder roads or with poorly maintained roads and bridges make it difficult for farmers to transport their agricultural produce. Inability to take the produce to the market often leads to establishing markets by the roadsides. From the study it was evident that transport plays a significant role in the daily lives of the communities and that they will benefit from the improvement of the feeder road network. Parallel work (World Bank 2001) indicated that a significant improvement in socioeconomicliving conditions was estimated with rural roads investment. The estimated benefits included the following:

- improved accessibility to social infrastructure [schools and health centers], increased opportunities to access education and health facilities and improved social interaction and mobility, which are important for social and economic development;

- improved access to markets by reducing transport costs;
- improvement of the marketability of perishable goods through timely and cheaper transport that will provide a direct incentive for more market-oriented agriculture, with more profitable cash crops, an increase in rural income and also additional employment opportunities.

A study (Bryceson 2006) investigated how effective road investment is in addressing mobility and social service accessibility in rural areas by using comparative data from Ethiopia, Zambia and Vietnam. It also investigated the question of whether roads can end geographical isolation and economic and social marginalisation for poorer communities. The findings of the study indicated that rural road investments have the potential to facilitate development and poverty alleviation, subjective to other key factors and basic preconditions that are linked to the realization of benefits. These include (1) the existing density of the rural road network, (2) the level of social and economic infrastructure provisioning, (3) the level of ownership and access of motorized transport in the rural population and (4) the level of purchasing power of rural households to access public transport. The study indicated that when roads enhance mobility it occurs in association with motorized transport, thereby providing easier movement for communities. This could result in poverty alleviation when the savings in travel time and the travel distances covered provide more economic opportunities or improved access to social services.

Socio-economic household surveys carried out in early 2006 in the rural mountain areas of Lesotho, as part of a study (Africon 2006) to determine the feasibility of rural road investment in this area, aimed to obtain the views of communities with respect to the expected impact of the rural road investment on their day-to-day living standard and overall socio-economic conditions.

The results of the surveys indicated that, in terms of the views of the communities, the

proposed rural road investment would pose significant socio-economic, or indirect, benefits. The surveys indicated that the proposed road investment could potentially create several short-term employment opportunities through road construction, and also long-term employment opportunities through continuous road maintenance through the lifespan of the road. The surveys furthermore indicated that daily activities and living conditions of communities in the project road area will be impacted upon positively, in the sense that there will be improved accessibility and mobility due to an improved road, with a subsequent improvement in day-to-day access to public, family and social activities and also improved accessibility to work opportunities. The study results further indicated that factors that are highly correlated with poverty (unemployment, limited to no income, low or no education level, etc) are also related to low access in the sense that men and women can afford little to no transport services, thereby constraining their mobility and accessibility. Furthermore, communities without access to an all-weather road network definitely have lower access to other facilities, as the specific project road in question in this regard appears to be inaccessible during summer raining, and especially winter snowing conditions.

2.4.4 Information Communications Technology

In research conducted between 1995 and 1997, Adam & Wood (1999), investigated the impact of ICT in sub-Saharan Africa. Focusing on four main areas they looked at ‘actual impact’, ‘potential impact’, ‘constraints’ and ‘actions centred on users and their reactions’. They found that ICT had the potential to play a positive role in sub-Saharan Africa; however the constraints meant that the gaps between actual impact and potential impact were hindering the region's ability to benefit fully from the technology. The constraints identified where an unreliable telecommunications infrastructure resulting in poor connectivity, low level maintenance and insufficient access particularly in rural areas.

Some studies however, have shown that there has been an increased uptake of mobile phones in developing countries, with the International Telecommunications Union [ITU] reporting that mobile phone subscription had surpassed landline connectivity in Asia and Africa [ITU, 2004]. Published market research in 2005 has shown that while Africa is still the fastest growing region in the world in terms of mobile phone subscribers, penetration rates are the lowest standing at just 11.53% in June 2005. Africa's huge growth rate is mainly due to the rapid growth in South Africa, Nigeria and Northern African countries such as Tunisia and Algeria, showing that access to mobile phone technology is unevenly distributed throughout the region (Informa Telecoms and Media, 2005). Data on the distribution of mobile phone technology between rural and urban areas within countries is not widely available and is a source for further research. Penetration rates in Africa may be misleading as research has shown that in Africa the impact of mobile phones extends beyond what the number of subscriptions suggests. As Lopez (2000) reports there is a culture of sharing communication tools that means that whilst a mobile phone may belong to a single person, it is often shared between members of a local community.

Research in India shows that this cultural aspect is also present, with a rise in micro-enterprise, examples of individuals in rural communities buying a mobile phone and selling air time to rural villagers is prevalent in literature on the possibility of economic growth through mobile phone technology in developing countries (Kumar, 2002). The growth of mobile phones in developing regions has been largely due to private sector growth in sub-Saharan Africa, increasing cellular coverage and producing low cost handsets. The availability of pre-paid phone cards and chips have enabled poor people in rural communities to gain access to the technology as there is no need for bank accounts and credit checks. Mobile phones are moving developing countries telecoms closer to universal service (Waverman *et al*, 2005).

2.4.4.1 Mobile Phones and Economic Development

The Grameen Phone project in Bangladesh is an example of how mobile phones can successfully increase economic growth in rural communities. In 1993 micro-credit loans were mainly given to women in Bangladesh to become 'telephone ladies'. By selling airtime to other members of the community they were able to create their own business. Calculations showed that the average daily profit was two dollars, significantly higher than the average daily income of less than a dollar per day (Bayes et al, 1999).

There is a wealth of anecdotal evidence highlighting the way in which mobile phone technology is being used to improve economic growth. Groups of farmers in Côte d'Ivoire share mobile phones to keep up-to-date with coffee and cocoa prices (Lopez, 2000). In Senegal, Manobi launched a free-access SMS market information service that sends free SMS containing relevant information to fisherman, traders and local authorities. The service aims to build users' capacity to seize market opportunities and increase their income, allowing them to choose their own speed of development and take up of advanced services when it is most beneficial for them (Manobi, 2005).

2.4.4.2 Mobile Phones and Social Development

In 2005 Vodafone published the report *'Africa: The impact of Mobile Phones'* and argued that increased mobile use and access in rural communities could serve to "mediate contact between different people, and so [were] likely to have an effect on the size, number and nature of social networks that people participate in" (Goodman, 2005). Research conducted by DFID (2005) on the impact of telephones in India, Mozambique and Tanzania, found that lower income groups were more likely to spend a higher proportion of their income on telephony than high income groups. Keeping travel costs down, social networking and emergencies were found to be the most important types of communication to the rural poor.

The research concluded that the telephone had a considerable impact on social capital, as it enabled communication with members of the family who lived remotely as well as saving time and travel cost of face to face communication.

2.5 Impact of Rural Infrastructure on Social Development in Nigeria

In Indonesia, government paid special attention to rural infrastructure development, and reaped growth and equity dividends. Indonesia neglected its rural infrastructure in the early part of Sukarno's reign. But starting in the 1970s up to the 1980s, the government emphasized rebuilding rural infrastructure for rural development. The first 5-year plan (1969-1973) focused primarily on providing irrigation facilities for rice self-sufficiency. The second and third (1974-1978 and 1979-1983) five-year plans laid more emphasis on rice production, increased resources available for economic and social infrastructure—roads, bridges, school buildings, and health facilities (Campos and Root, 1996). Between 1973 and 1979, more than 61,800 primary school buildings were built, making available 222 new schools and 666 new teachers per district. The number of schools constructed in each district from 1973 to 1975 was proportional to the number of primary school children not enrolled in schools in 1972. This project almost doubled the number of primary schools in the country. According to Darja *et al*,(2005) Indonesia also successfully implemented a large project to build public health care centers, which led to "significant improvements in the availability of and access to primary health centers in the regions all over the country." These investments contributed to dramatically reduce poverty from about 60% in 1970 to 33.3% in 1978, and 28% in 1980.

In Nigeria, however, the lack of emphasis on rural infrastructure make most rural areas underdeveloped. The rural areas have not been attracting personnel in the few available institutions like primary and secondary schools, dispensaries, maternity centers etc. When these personnel are posted to the rural areas rather than stay and work in these areas, they prefer to live in nearby urban centers and continue to shuttle between the urban centers and

the location of their posting in the rural areas. The shuttling in most cases is usually one day per week affairs. This does not allow for meaningful contribution through their work performance to the welfare of the rural people. Hence rural areas are characterized with high illiteracy and mortality rates. The rural population of many developing countries including Nigeria has been suffering different kinds of deprivation. Quality of services for many rural people is considerably poorer than for urban areas (Okafor and Onokerhoraye, 1980).

In many communities in Nigeria, inadequate and low quality infrastructure has been known to have serious implications for welfare and the persistence of poverty. Rural infrastructural development in Nigeria has long been neglected, yet investments in health, education and water supply have largely been focused on the cities. Consequently, the rural population have limited access to services such as schools and health centers, and about half of the population lacks access to safe drinking water (Okafor and Onokerhoraye, 1980). Limited education opportunities and poor health perpetuate their poverty cycle, the neglect of rural infrastructure has also reduced the profitability of producing for the markets. Nigeria's rural road network is one of the least developed in sub-Saharan Africa as a result the poor tends to live in isolated villages that can become virtually inaccessible during the rainy seasons (The World Bank Group, 1998).

A major problem with the pattern of distribution of public facilities in Nigeria however, is that it exhibits an urban rather than a rural location bias which further helps to increase rural poverty. While some areas are heavily served with public facilities such as health centres, schools, electricity, water and postal services, others are either underserved or not served at all (Ikporukpo 1987). Another problem with the distribution of public facilities in Nigeria particularly in the rural areas, is the lack of coordination in their distribution so as to make them more relevant to the population they are meant to serve.

Many studies so far have been carried out for studying the relationship between infrastructure and rural development. For example, Ogunsanya (1987) and Filani (1993) found in their different studies that where motorable roads exist in rural areas, in Nigeria, they are mostly of unpaved surface, narrow width, circuitous alignment and with low quality bridges. In most cases, they are either clad with potholes or characterized by depressions and sagging. Such unsurfaced roads are hardly passable during the rainy season when vehicles get stuck in mud or when the improvised bridges of cut-free trunks get swept away by flood. This study is mainly focused on rural transportation. The study by Adereti and Adeokun(2005) on the rural women's access to infrastructural facilities in rural areas in Osun State, Nigeria revealed that most (89.7 percent) of the respondents did not have access to reliable public transportation. The implication of this for rural women is that they will find it difficult to get their produce to the market and the perishable produce may get spoilt. Nearly all the basic infrastructural facilities are not available and in areas where they are available, most of the respondents do not have access to them. The consequence of this finding as revealed by Akinwunmi et al. (1999) was that rural residents needed to go to larger towns to secure such services. The study concluded that there is need therefore to improve upon the condition of the rural areas in order to alleviate the suffering of these rural women in terms of their access to infrastructural facilities.

Furthermore, Ayoade (1982) investigated the provision of health facilities in both the rural and urban areas of the then Plateau State and subjected the location of the hospitals in the state to policy analysis using the criteria of distributive equity and optimum location. The study revealed that bed-patient ratio; hospital personnel patient ratio; doctor patient ratio; nurse patient ratio were all high and also observed that there was a high concentration of public and private hospitals in Jos, the state capital. The literature cited above pointed out that health facilities needed substantial rehabilitation so that they could effectively offer the

required services. The researcher also noted that a lot needed to be done so as to meet the required standards like ratio of medical doctors to a given population in order to adequately cater for the health needs of the rural people.

However, it appears that there is no study available that tries to assess the effects of infrastructural facilities on the social life of rural dwellers. Therefore, this research intends to bridge the knowledge gap by assessing the impact of rural infrastructure on social development using Giwa L.G.A as a case study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Types of Data Required

The data needed for this study comprised both primary and secondary:

3.1.1 Primary data.

- An inventory of the existing rural infrastructure which included educational infrastructure, commercial infrastructure, administration, public utility (water and electricity), transport and communication infrastructure as well as health and recreational infrastructure (table 3.1)
- Access to and patronage of the infrastructure by way of oral interviews and questionnaire administration in order to elicit information from the respondents. Some of the issues the questionnaire addressed include availability, access and usage of the available infrastructure as well as the possible impact of the infrastructure on the well-being of the respondents.

3.1.2 Secondary data

- Topographical map to show the nature of the distribution of the available rural infrastructure in the study area.
- Data were obtained from unpublished projects, journals, text books, newspapers and websites which were relevant and helpful in generating ideas, facts and issues relating to the study.
- Photographs were taken to show the nature of the available infrastructure.

3.2 Sampling Method

In an attempt to conduct the research without bias, the result of 2006 census which put the population of Giwa LGA at 286,427 (NPC, 2009), was used to draw an appropriate sample size for questionnaire administration.

A multistage sampling technique was used to obtain a representative sample of respondents in the study area. The first stage involved the stratification of the whole local government area with respect to political boundaries which form the wards or strata (after Stacy, 2001) (Fig.4.2). The second stage was the purposive selection of respondents in each ward depending on the number of questionnaires allocated. The purposive technique was preferred in this work because it will enable the researcher to choose respondents who have lived long enough in the LGA and who are willing to respond appropriately and quickly to the questionnaires.

A survey software package called a Sample Size Calculator (CRS, 2009) was used to determine the sample size needed for the study as follows:

Population of Giwa LGA = 286,427

Confidence level = 95%

Confidence interval = + or - 5

The result of the calculation showed that a total of 384 questionnaires would be administered to respondents in the study area. Because the population size in the wards was not uniform, the sample size in each ward (stratum) was taken in proportion to the population size of the ward using a method called proportional allocation (Neville and Sidney, 2001).

3.3 Method of Data Analysis

Both descriptive and inferential statistics were used in the analysis, namely

The statistical tools that were used in this study are:

i. Location Quotient (LQ),

ii. Multiple Regression Analysis.

Following Madu (2007), the score for social development for each ward was obtained using the available rural infrastructural facilities as follows:

$$LSD = \sum Xi\ Xij \text{------} 1$$

Where LSD stands for the level of social development and Xi is the number of facilities for the ith ward while Xij represents the weighted scores of the facilities. The weights was determined by assigning '1' to low-order facilities (when the number of a facility per ward is 5 and above), '2' to higher order facilities (when the number of a facility per ward is 2 to 4) and '3' to the highest order facilities (when the number of a facility per ward is 1 only). The number of a facility per ward was used to multiply the weight of the facility and score was summed up using equation (1) above. The relative rates of performance on the facilities were determined by location quotients (LQ).

Table.3.1: list of facilities used in assessing the level of social development.

Institution/Establishment	**Facility**
Education	• Post Secondary School • Secondary School • Primary School
Commercial	• Market • Bank
Administration	• Local Government Office • Magistrate/Sharia court • Police station • Police Post
Public Utility	• Electricity • Water Supply
Transportation and Communication	• Express Road • Tarred State or LG Road • Untarred road • Motor Park • Telecommunication mast • Post Office
Health	• General Hospital • Primary Health care centre • Patent medicine store
Recreation	• Sport viewing centre • TV viewing centre • Community Hall • Playing ground

Source: Field Survey, 2011

Location Quotient

Location quotient (LQ) is basically a way of quantifying how 'concentrated' a particular activity (e.g. industry, cluster, occupation, or demographic group) is in a region as compared to a larger geographic area, such as the state or nation. In more exact terms, location quotient is a ratio that compares a region to a larger reference region according to some characteristic or asset (EMSI, 2007).

In this study, location quotient (LQ) was used to quantify the relative concentration of rural infrastructure in every ward as compared to the whole of Giwa local government area.

$$LQ = \frac{x_i / X}{p_i / P} \quad \ldots\ldots\ldots 2$$

Where x_i is the number of facilities for the ith ward, p_i is the population of the ith ward and

$$X = \sum_{j=1}^{N} x_i, \quad \text{while} \quad P = \sum_{j=1}^{N} p_i .$$

According to Madu (2007), population was used to determine the LQ in the study instead of areal extent since the facilities are meant to serve people. An LQ equals to or exceeding 1 indicates that the ward has achieved a comparatively more significant level of social development using the development indicators, while an LQ less than 1 indicates that the ward is disadvantaged.

An inferential statistical method that was used in the analysis of data obtained from the field was the multiple regression model.

Multiple Regression Analysis

Multiple regression is a flexible method of data analysis that may be appropriate whenever a quantitative variable (the dependent or criterion variable) is to be examined in relationship to any other factors (expressed as independent or predictor variables). Relationships may be nonlinear, independent variables may be quantitative or qualitative, and one can examine the effects of a

single variable or multiple variables with or without the effects of other variables taken into account (Cohen, Cohen, West, & Aiken, 2003).

In this study, in order to provide a strong validity to the hypothesis stipulated and also to gain more understanding of the specific infrastructures which contribute more to social development in the study area, scores for the level of social development (LSD) was summed up and regressed on the seven social indicators (i.e., explanatory independent variables) which are expected to have an influence on social development. These are:

Table.3.2: Infrastructural Facilities and the Corresponding Social Indicators

S/No	**Facilities**	**Indicators**
1	Education	Number of schools per 1,000 population in 2011.
2	Commercial	Number of commercial facilities per 20,000 population in 2011.
3	Administration	Number of administrative facilities per 20,000 population in 2011.
4	Public Utility	Number of public utilities per 1,000 population in 2011.
5	Transport and Communication	Number of transport and communication facilities per 1,000 population in 2011.
6	Health	Number of health facilities per 1,000 population in 2011.
7	Recreation	Number of recreational facilities per 1,000 population in 2011.

Source: Field Survey, 2011

A system of indicators works like a control panel. It facilitates the identification of problems and allows for their magnitude to be measured. To be able to construct a good indicator, one must be able to identify the most interesting phenomena to measure. These will depend on the country's choices as inspired by the objectives of its policy on the phenomena. (Patricia *et al,* 2007)

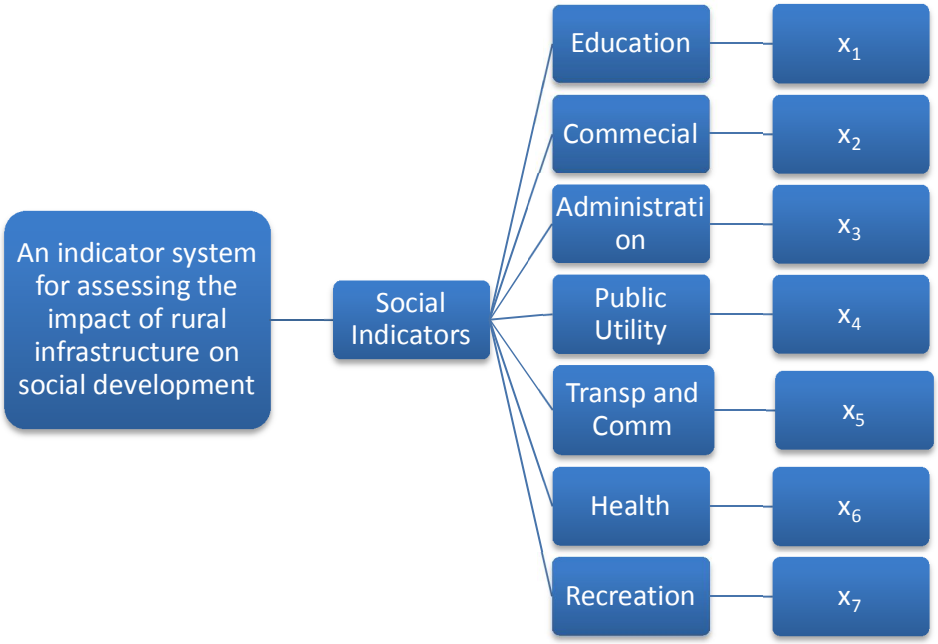


Fig.3.1: An Indicator System for Assessing the Impact of Rural Infrastructure on Social Development.

Source: Field Survey, 2011

$$Y_i = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + e \quad \text{-----3}$$

Where

- Y_i = is the index of social development (LSD)
- b_0= intercept value
- b_1-b_5= regression coefficients
- x_1-x_5= are independent variables such that
- x_1 = Number of schools per 1,000 population in 2011.
- x_2= Number of commercial facilities per 20,000 population in 2011.
- x_3 = Number of administrative facilities per 20,000 population in 2011.
- x_4 = Number of public utilities per 1,000 population in 2011.
- x_5 = Number of transport and communication facilities per 1,000 population in 2011.
- x_6 = Number of health facilities per 1,000 population in 2011.
- x_7= Number of recreational facilities per 1,000 population in 2011.

The result was interpreted using the value of R^2 = coefficient of determination which measures the proportion in the variation of the Y variable (LSD) that is explained by the variations in the independent variables. Also, the P-value was used to determine the significant variables (i.e., infrastructures that contributed more to social development) in the multiple regression equation at 0.05 level of significance. The computer software used for this analysis was the (SSP) Smith's Statistical Package, Version 2.80.

CHAPTER FOUR

THE STUDY AREA

4.1 Background Information

Historical development : Giwa Local Government is one of the 23 local government areas of Kaduna State, it was created out of Igabi Local Government Area on the 15th 0f September, 1991 by the General Ibrahim Badamasi Babangida's administration. The local government has eleven wards that is Giwa, Yakawada, Gangara, Dan Mahawayi, Kadage, Shika, Kidandan, Galadimawa, Idasu, Kakangi and Fan Hauya. Giwa ward is the administrative headquarters for the Local Government Area (Foin, 2002)

4.2 Physical Setting

4.2.1 Location

Giwa local government area is located in the plain of the Northern part of Kaduna State. It lies between latitude 12.20°N and 11.52°N and longitude 7.0°E and 7.5°E. It has a total area of about 2,066Km^2, it is bounded in the north by Funtua local government area (Katsina State), in the west by Birnin Gwari local government area; east by Sabon Gari,Zaria and Kudan local government areas. In the south, it is bounded by Igabi local government area. (Fig.4.2).

4.2.2 Climate

Giwa local government area falls within the Tropical Continental climate (AN) based on thornthwaits climatic classification. It has a clearly marked dry season and hot season (November – April) and wet double maxima rainfall in May to October. The mean annual rainfall is about 1000mm. The dry season is particularly rainless. This low and seasonal character of rainfall makes vegetation of the area to assume various shades of green in the wet season and turns brown, pale or yellow in the dry season.

According to Thornthwait's moisture index, the climate of Zaria is dry sub-humid. Giwa local government area is invaded by two different air masses – one from the north – dry and continental in origin (the Sahara air mass) and the other from the Atlantic in the south which is moist cool and equatorial moist in nature. The weather depends to a large extent on the air masses from a discontinuity zone between the moist Equatorial air (ME) of mostly southern atmospheric origin and dry Tropical Continental air (CTS) of northern hemisphere origin.

4.2.3 Soils

The soils reflect the geology, climate and vegetation of the area. It is part of the Zaria soil group with covering material consisting of several meters of decomposed rocks. The soils of these groups are normally heavily worked; drainages being very poor on account of the high percentage of fine materials in the upper layers. It becomes waterlogged with rains and also cracks during the dry season. Alluvial soils occur especially along the rivers streams.

Giwa local government area lies on plain land ranging in height from 550-750m above sea level. This plain is being drained by River Kubanni with its numerous tributaries. This river becomes heavily flooded during the wet season and dries up during the dry season. Alluvial soils which occur along this river are used for dry season farming.

4.2.4 Relief

Giwa local government lies within the north central highlands which are composed of granite rocks. This area is a dissected portion of the Zaria-Kano plains; an extensive peneplain developed on crystalline metamorphic rocks of the Nigerian Basement Complex. The plains vary in height thus reflecting both regional scope to the south and a local relief of 100-150m. The angle, whilst attaining comparatively steep values over restricted areas are generally low between 0.5 to 4 degrees. The plains are a vast gentle undulating land with scenery which

extends almost unbroken from sokoto to Lake Chad and beyond, and also from Kaduna to the tigneddi scap (Foin, 2002).

4.2.5 Vegetation

The natural vegetation of Zaria where Giwa local government is located is referred to as the Northern Guinea Savanna zone, a designation which implies a woodland vegetation type characterized by the presence of Isoberlina doka with a well adopted grass layer of tufted Androgeneae. Also typical of this savanna woodland are a group of plants which generally flower before the onset of the rain. These are cryptophytes, which include the buttons and rhizonation plants and the very typical sub-shrubs.

Many savanna trees can exist for years and will develop into trees when conditions are suitable. Under large part of Zaria plains is a layer of indurated laterite, this layer appears at the surface following erosion of the top soil.

4.3 Human Setting

4.3.1 Population Structure and Distribution

The result of 2006 census put the population of Giwa L.G.A at 286,427 in which the population size of male is 144,218 and that of female is 142,209 (NPC, 2009).Although the local government is more of a rural setting, there are two major urban centres Giwa and Shika which together account for more than 30 percent of the total population. The low populated wards are Dan Mahawayi with 4.2 percent, Fan Hauya with 3.0 percent and least populated ward is Kadage with only 2.3 percent of the total population. An important feature of the population is the 1:1 ratio of male to female, which is a positive trend in terms of socio-economic development plans. The people in Giwa local government are mainly Hausa and Fulani who are predominantly Muslims, However, there is a large number of Maguzawa in the North East as well as the South West of the local government. These Maguzawas speak the Hausa language purely and are predominantly Christians. Other tribes do exist in almost

all the wards, they live side by side with the indigenes of the local government while participating in different businesses such as commodity trade, machine repair and operation of patent medicine stores. These tribes are mainly Ibos and Yorubas and other groups from different parts of Nigeria.

4.3.2 Economic Activities

The major source of livelihood in this area is agriculture. About 50 percent of the people interviewed have farming as their major occupation while 40 percent regarded farming as a secondary activity for supplementing income. The most important cash crops are maize, groundnuts, rice and soybeans which are also the main food crops. The bulk of agricultural production in the local government is undertaken by the peasant farmers of which women participation is minimal. Since farming is an activity closely related to rainfall, farmers usually shift to other occupations particularly during dry season. These include trading and services which are the most important in the area. However, during dry season there are some people that practice irrigation farming as the Local Government Area is blessed with floodplains popularly known as fadama lands. These floodplains are characterized by availability and accessibility to both open surface and underground water. Some of the rivers used for irrigation are Sabon Birni Dam and Rafin Kago river in Giwa ward, Store Dam at Yakawada ward as well as Tashar Shari and Fatika dams at Idasu and Galadimawa wards respectively. The major crops grown during the dry season are tomatoes, pepper, onions, wheat, lettuce, carrot, garden egg plant, maize, and sugarcane.

4.3.3 Infrastructural Facilities

Infrastructural facilities have a remarkable impact on the pattern of socio-economic life and development of rural areas. Apart from the vital role they play in the economic life of the rural population, they also play a crucial role in the maximization of social wellbeing of

the people (Onoherhorye, 1984). For instance, transport facilities not only enhance the process of economic growth in the rural areas by making products and markets function more effectively, they also increase social wellbeing of the rural population by facilitating movement to places where other essential social services such as health and education are available.

In Giwa local government area, most of the motorable roads are highly seasonal this is because the commonest transportation routes in most villages are untarred roads constructed by the local government authority. The very few tarred roads that were constructed by the state government are dispersed in the various wards with a concentration in Giwa and Shika. Road network in the various wards can be said to be good due to the fact that the villages are highly accessible which results in easier transportation of agricultural produce to the different markets in the local government. The only problem is during raining season when some villages are almost inaccessible by cars. In terms of telecommunication, masts are found in the major urban centres (i.e., Shika and Giwa). Although most of the wards lack telecomm masts but the network coverage is not too bad, this is because even in the remote villages people are seen with GSM phones.

The availability of basic services such as portable water supply, health care and electricity is inadequate. Although there is almost even distribution of the facilities among the wards, population sizes differ among them which results in the inadequacy of the facilities in terms of both availability and accessibility. For example, every ward in the local government is connected with electricity, boreholes and wells are found in every settlement while each ward has a primary health care centre in addition to hospital particularly in Giwa, Yakawada and Shika.

Education has been universally defined as a prerequisite for development. It is a way people acquire knowledge and create changes in terms of skills, attitudes and values which enhances development. There is an uneven distribution of both primary and secondary schools in the local government, for example, there are about twenty secondary schools but nine out of the twenty are located in just two wards Shika and Giwa. The cooperation between state government and NGOs such as the Millennium Development Goals (MDGs) has impacted positively on primary education, as new classes are being built while existing ones are being renovated. Classrooms are being provided with chairs and other facilities in order to provide school children with basic primary education.

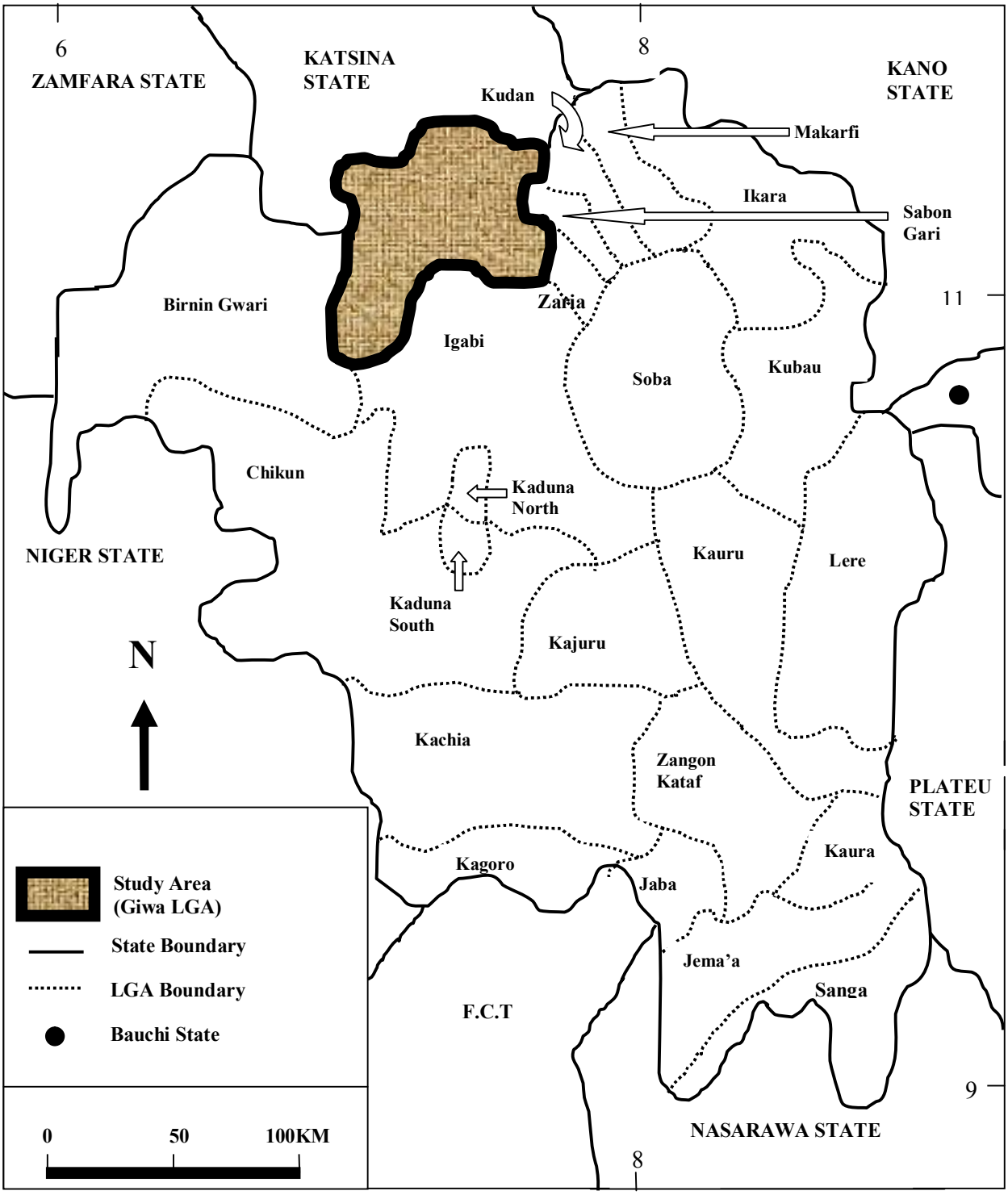


Fig. 4.1: Location of Giwa L.G.A In Kaduna State

Source: Field survey, 2010.

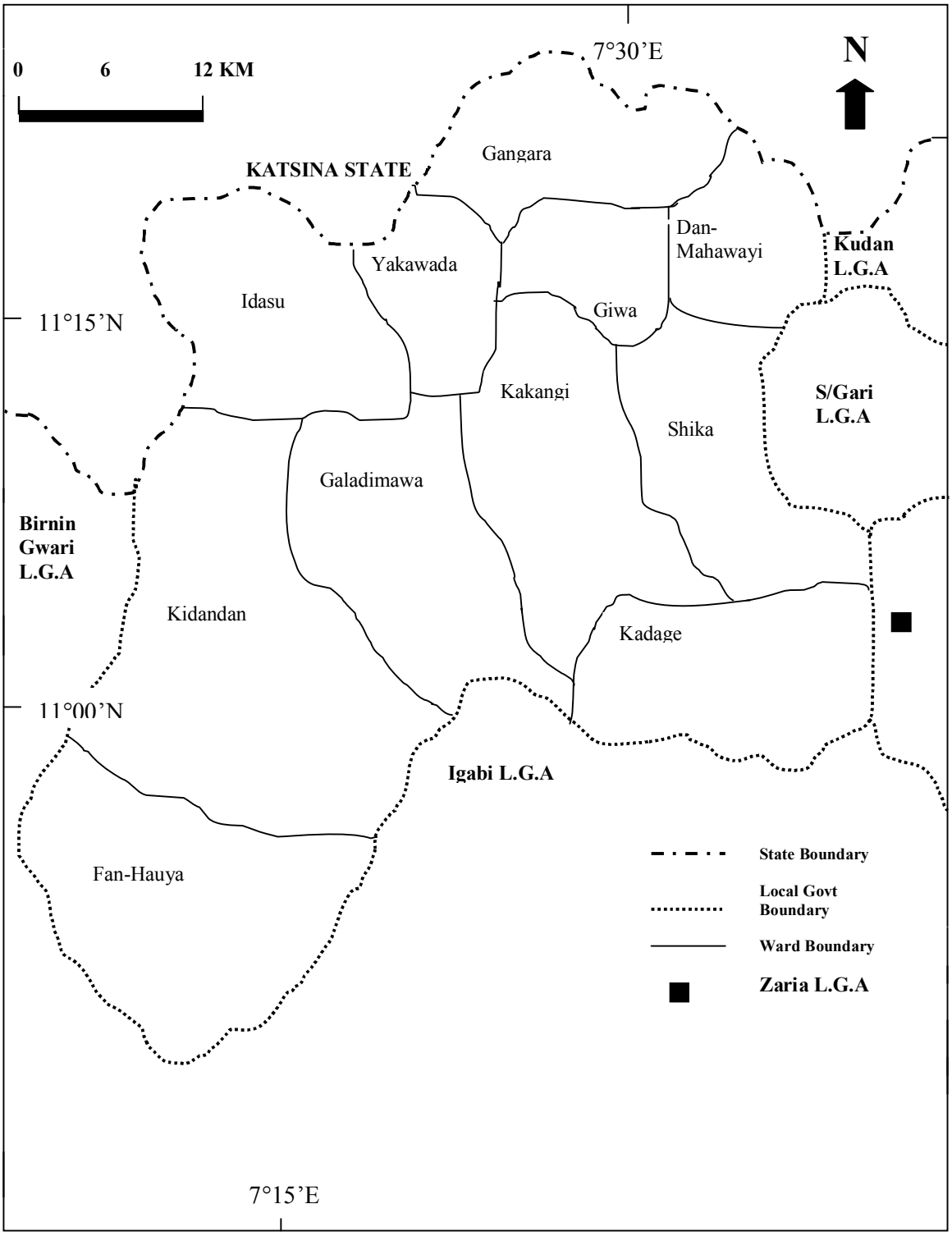


Fig. 4.2: Wards and their location in Giwa L.G.A Source: Field survey, 2011.

CHAPTER FIVE

DATA PRESENTATION AND ANALYSIS

5.1 Introduction

The analyzed data presented below is based on the information supplied by the respondents. The infrastructural facilities covered by this study included education, commercial, administration, public utility, transport and communication, health and recreation.

5.2 Background of the Respondents

In this section the background of the respondents which include age, gender, education as well as occupation and other sources of income were discussed to provide a better understanding of how access, patronage and the utilization of rural infrastructure is related to social development. The summary of respondents' age, gender and educational attainment etc. are presented in table, 5.1,5.2, 5.3a and 5.3b respectively.

Table 5.1: Age distribution of the respondents

Age	**Frequency**	**%**
20-29	162	51
30-39	85	27
40-49	21	7
50-59	30	9
60 and above	18	6
Total	**316**	**100**

Source: Field survey, 2011.

Both tables 5.1 and 5.2 show that the population of presents the ages of the respondents. As can be seen in the table, more than half of people interviewed during the survey were

young people between the ages of 20 to 39. Age group 20 to 29 covered about 51 per cent of the respondents, Followed by age 30 to 39 which is 27 per cent. The least is the elderly which is age 60 years and above.

Table 5.2: Gender distribution of the respondents

Ward	**Male**	**%**	**Female**	**%**	**Total**
Giwa	53	22	16	21	69
Yakawada	21	9	9	11	30
Gangara	17	7.1	14	18	33
Dan Mahawayi	15	6	2	3	16
Kadage	7	3	2	3	9
Shika	45	19	19	24	63
Kidan Dan	20	8.4	5	6	25
Galadimawa	20	8.4	-	-	20
Idasu	15	6	8	10	23
Kakangi	16	7	-	-	16
Fan Hauya	9	4	3	4	12
Total	**238** **75%**	**100**	**78** **25%**	**100**	**316** **100%**

Source: Field survey, 2011.

The gender distribution of the respondents is shown in Table 5.2. Data analysis shows that male constitutes about 75 per cent while female constitutes only 25 per cent of the respondents interviewed. Generally, the number of males is greater than that of females in all the wards. This reveals the need for more infrastructure which will definitely increase access and patronage particularly for women who are in most cases indoors.

Table 5.3a: Distribution of respondents by educational qualification (Lower Level)

Ward	*N/F	%	*S/P	%	*F/P	%	*S/S	%	*F/S	%
Giwa	5	9.6	7	15.6	10	20	17	39.5	7	12.3
Yakawada	2	3.8	3	6.7	7	14	3	7.0	2	3.5
Gangara	9	17.3	5	11.1	4	8	5	11.6	7	12.3
Dan Mahawayi	3	5.8	2	4.4	3	6	-	-	4	7.0
Kadage	2	3.8	3	6.7	-	-	1	2.3	2	3.5
Shika	2	3.8	6	13.3	12	24	8	18.6	21	36.8
Kidan Dan	11	21.2	-	-	2	4	6	14	3	5.2
Galadimawa	3	5.8	11	24.4	2	4	-	-	2	3.5
Idasu	7	13.5	3	6.7	5	10	2	4.7	4	7.0
Kakangi	5	9.6	4	8.9	1	2	-	-	2	3.5
Fan Hauya	3	5.8	1	2.2	4	8	1	2.3	3	5.2
Total	**52 16.5%**	**100**	**45 14.3%**	**100**	**50 15.8%**	**100**	**43 13.6%**	**100**	**57 18%**	**100**

*N/F – No formal education, *S/P – Some primary education, *F/P – Full primary education, *S/S – Some secondary education, *F/S – Full secondary education.
Source: Field survey, 2011.

Education improves the level of farmers' technical know-how as well as their socio-economic conditions. Thus, educational qualification can determine the level of social development of a community. Tables 5.3a and 5.3b present the educational qualification of the respondents at both lower and higher levels. At lower levels, about 16.5 per cent of the respondents do not have a basic primary education, on the other hand, Shika ward has the highest number of respondents with full secondary education. At higher level of education, Giwa ward has the highest respondents with NCE (about 8 people) while most of the wards do not have university graduates as respondents. These tables have identified wards that are socially underdeveloped in terms of education as a result of inadequacy of educational infrastructure.

Table 5.3b: Distribution of respondents by educational qualification (Higher Level)

Ward	NCE	%	OND	%	HND	%	Degree	%	Total
Giwa	8	34.8	10	33.3	2	25.0	3	37.5	69
Yakawada	3	13.0	5	16.7	3	37.5	2	25.0	30
Gangara	2	8.7	-	-	-	-	1	12.5	33
Dan Mahawayi	1	4.3	3	10.0	-	-	-	-	16
Kadage	-	-	1	3.3	-	-	-	-	9
Shika	5	21.7	6	20.0	1	12.5	2	25.0	63
Kidan Dan	1	4.3	2	6.7	-	-	-	-	25
Galadimawa	2	8.7	-	-	-	-	-	-	20
Idasu	-	-	-	-	2	25.0	-	-	23
Kakangi	1	4.3	3	10.0	-	-	-	-	16
Fan Hauya	-	-	-	-	-	-	-	-	12
Total	**23** **7.3%**	**100**	**30** **9.5%**	**100**	**8** **2.5%**	**100**	**8** **2.5%**	**100**	**316** **100%**

Source: Field survey, 2011.

People in rural areas are engaged in different economic activities for their livelihood, some people engaged in more than one activity in order to supplement. Tables 5.4a and 5.4b show major occupation as well as other sources of income for the respondents. Farming has the highest number of respondents about 50 per cent, followed by trading, about 17 per cent and finally, services have 15 per cent. Among the wards, Giwa and Shika have the highest number of service providers due to development of these wards. Giwa is the local government headquarters while shika is close to samara and is now rapidly growing due to the relocation of A. B. U teaching hospital. Farming remains the biggest alternative source of income in the study area. Trading and services also play an important role as alternative sources. On the other hand, labour accounted for 14 per cent of the respondents meaning that more people engaged in labour activities particularly on the farm to generate more income. The provision of credit facilities and other farm input couple with good transport and communication facilities is certain to increase the quantity of farm produce which will generate more income leading to more social activities.

Table 5.4a: Major occupation of the respondents

Ward	*Fm	%	*Tr	%	*Lb	%	*Ct	%	*T/D	%	*T/V	%	*S	%
Giwa	23	14.5	8	14.8	15	44.0	-	-	4	30.8	2	40	17	35.4
Yakawada	15	9.4	5	9.3	3	8.9	-	-	1	7.7	-	-	6	12.5
Gangara	18	11.3	5	9.3	1	2.9	2	66.7	-	-	3	60	4	8.3
Dan Mahawayi	10	6.3	3	5.6	-	-	-	-	2	15.4	-	-	1	2.1
Kadage	7	4.4	2	3.7	-	-	-	-	-	-	-	-	-	-
Shika	22	13.8	16	29.6	8	23.5	1	33.3	2	15.4	-	-	14	29.2
Kidan Dan	20	12.6	4	7.4	1	2.9	-	-	-	-	-	-	-	-
Galadimawa	13	8.2	2	3.7	2	6.0	-	-	3	23.0	-	-	-	-
Idasu	15	9.4	2	3.7	2	6.0	-	-	1	7.7	-	-	3	6.3
Kakangi	9	5.7	4	7.4	1	2.9	-	-	-	-	-	-	2	4.2
Fan Hauya	7	4.4	3	5.6	1	2.9	-	-	-	-	-	-	1	2.0
Total	**159**	**100**	**54**	**100**	**34**	**100**	**3**	**100**	**13**	**100**	**5**	**100**	**48**	**100**
	50%		**17%**		**11%**		**1%**		**4%**		**2%**		**15%**	

*Fm – Farming, *Tr – Trading, *Lb – Labourer, *Ct – Contractor, *T/D – Transport (Driver), *T/V – Transport (Vehicle owner), *S – Service provider.

Source: Field survey, 2011.

Table 5.4b: Other sources of income for the respondents

Ward	*Fm	%	*Tr	%	*Lb	%	*Ct	%	*T/D	%	*T/V	%	*S	%
Giwa	25	20.0	10	16.4	19	42.2	-	-	-	-	7	53.8	8	14.5
Yakawada	15	12.0	4	6.6	1	2.2	-	-	-	-	1	7.7	9	16.3
Gangara	10	8.0	11	18.0	5	11.1	-	-	3	30.0	-	-	4	7.3
Dan Mahawayi	4	3.2	9	14.8	-	-	-	-	-	-	-	-	3	5.5
Kadage	5	4.0	-	-	1	2.2	-	-	-	-	-	-	3	5.5
Shika	16	12.8	9	14.8	12	26.7	7	100	-	-	4	30.8	15	27.2
Kidan Dan	11	8.8	5	8.2	-	-	-	-	2	20.0	1	7.7	6	10.9
Galadimawa	10	8.0	6	9.8	1	2.2	-	-	-	-	-	-	3	5.5
Idasu	15	12.0	3	4.9	3	6.7	-	-	2	20.0	-	-	-	-
Kakangi	8	6.4	3	4.9	-	-	-	-	1	10.0	-	-	4	7.3
Fan Hauya	6	4.8	1	1.6	3	6.7	-	-	2	20.0	-	-	-	-
Total	**125**	**100**	**61**	**100**	**45**	**100**	**7**	**100**	**10**	**100**	**13**	**100**	**55**	**100**
	40%		**19%**		**14%**		**2%**		**3%**		**4%**		**18%**	

*Fm – Farming, *Tr – Trading, *Lb – Labourer, *Ct – Contractor, *T/D – Transport (Driver), *T/V – Transport (Vehicle owner), *S – Service provider.
Source: Field survey, 2011.

The graph (fig 5.1) provides a simple picture of other sources of income for the respondents so that assessment and comparison can be made among the wards.

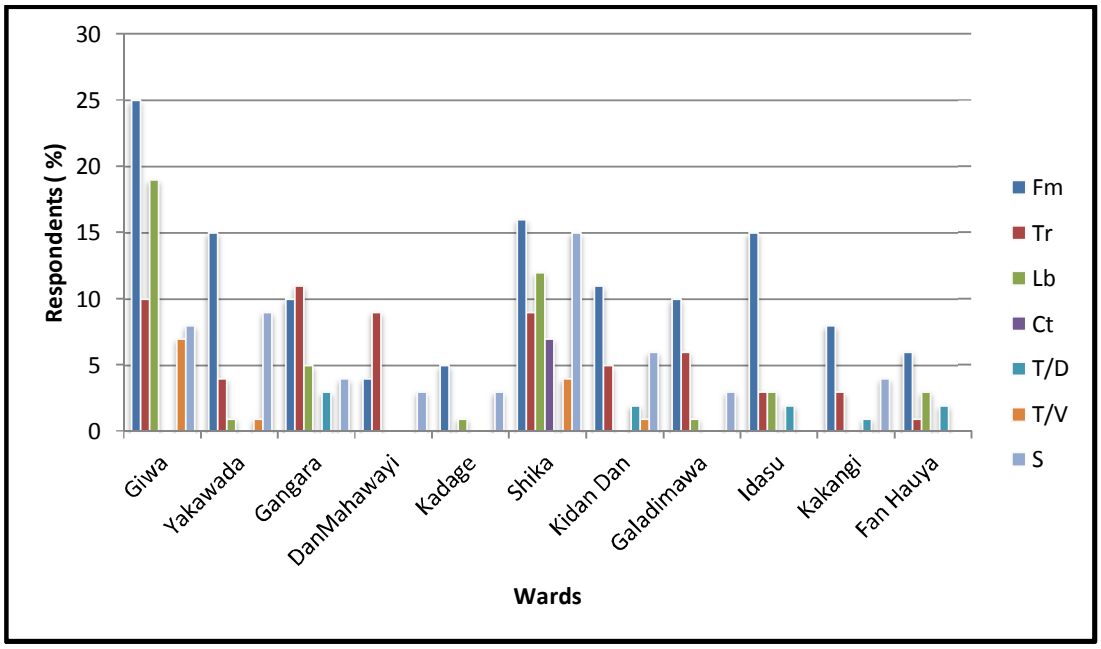


Fig 5.1: Other sources of income

Source: Field survey, 2011.

5.3 Educational Infrastructure

Education contributes to the reduction of both absolute and relative poverty. Basic education, in particular, helps to alleviate poverty by helping poor people improve their lives. Mothers with some education raise healthier families. Children and youth with basic skills and knowledge can read and write, which gives them more access to information and innovation. Adults on the other hand can make more informed decisions that affect the quality of their lives. See table 5.5 for the distribution of educational facilities in Giwa L.G.A of Kaduna state,

Table 5.5: Distribution of Schools by Ward in Giwa L.G.A

	Educational Infrastructure			
Ward	**Tertiary Institution**	**Secondary School**	**Primary School**	**Total Number Of Infrastructure**
Giwa	-	4	12	16
Yakawada	-	1	7	8
Gangara	-	1	7	8
Dan Mahawayi	-	1	5	6
Kadage	-	1	10	11
Shika	-	5	15	20
Kidan Dan	-	2	11	13
Galadimawa	-	1	8	9
Idasu	-	2	13	15
Kakangi	-	1	6	7
Fan Hauya	-	1	10	11
Total	**0**	**20**	**104**	**124**

Source; Field Survey, 2011

The number and location of schools in any locality would depend on the type of population distribution which could be characterized as being either dispersed or nuclear. The pattern of settlement in the two major urban centres of Shika and Giwa is nuclear while the other wards exhibit dispersed pattern as shown in Table 5.5. There was not a single post-secondary institution of learning in the study area, but rather properties of ABU Zaria such as National Animal Production Research Institute (NAPRI) which is an institution located at Shika. The table shows that the highest number of primary schools were in Shika and Giwa wards while the highest number secondary schools were found in Shika, Idasu and Giwa wards. The least number of secondary schools were in Dan Mahawayi ward.



Plate I: A primary school at Kadage ward

Table 5.6: Distance of primary schools from respondents' residents

Ward	**Less than 1km**	**%**	**1-3km**	**%**	**More than 3km**	**%**
Giwa	32	35.0	10	14.7	7	27.0
Yakawada	6	6.7	11	16.2	2	7.7
Gangara	5	5.5	4	5.9	5	19.2
Dan Mahawayi	-	-	5	7.4	3	11.5
Kadage	-	-	1	1.5	4	15.4
Shika	29	31.9	13	19.0	-	-
Kidan Dan	8	8.8	3	4.4	2	7.7
Galadimawa	3	3.3	5	7.4	-	-
Idasu	7	7.7	5	7.4	-	-
Kakangi	1	1.1	7	10.2	1	3.8
Fan Hauya	-	-	4	5.9	2	7.7
Total	**91** **29%**	**100**	**68** **22%**	**100**	**26** **8%**	**100**

Source; Field Survey, 2011

Walking distance to a school is the range that the students are prepared to travel from their homes. Because of the nature of the journey to school, its regularity and its being undertaken by children, the walking distance is normally small particularly for primary schools followed by secondary schools and so on. Table 5.6 presents the walking distance of primary schools from respondents' residents, in Giwa and Shika wards. It reveals that 66.9% of respondents travel less than one kilometer to reach a primary school. This is so, considering the number primary schools each of them has, settlement pattern and areal extent. In Shika wards no respondent travels more than three kilometers before arriving at a primary school. Similarly, the response of walking distance to secondary schools is presented in table 5.7.



Plate II: A classroom ***without adequate seats for students*** at Dan Mahawayi ward.

Table 5.7: Distance of secondary schools from respondents' residents

Ward	Less than 1km	%	1-3km	%	More than 3km	%	Total
Giwa	3	8.6	15	35.7	2	3.7	69
Yakawada	7	20.0	2	4.8	2	3.7	30
Gangara	3	8.6	3	7.1	13	24.0	33
Dan Mahawayi	1	2.9	1	2.4	6	11.1	16
Kadage	1	2.9	-	-	3	5.6	9
Shika	7	20.0	12	28.6	2	3.7	63
Kidan Dan	5	14.3	3	7.1	4	7.4	25
Galadimawa	4	11.4	-	-	8	14.8	20
Idasu	3	8.6	3	7.1	5	9.3	23
Kakangi	-	-	2	4.8	5	9.3	16
Fan Hauya	1	2.9	1	2.4	4	7.4	12
Total	**35** **11%**	**100**	**42** **13%**	**100**	**54** **17%**	**100**	**316** **100%**

Source; Field Survey, 2011

Table 5.7 reveals that Gangara ward accounts for 24.0% of the respondents who travel more than three kilometers to reach a secondary school. It is followed by Galadimawa ward with 14.8%. Tables 5.6 and 5.7 show that respondents are closer to primary schools than secondary schools, this can be attributed to the fact that there are more primary schools than secondary schools in the study area. The location pattern shows that both primary and secondary schools are established to serve communities or villages based on their population threshold.

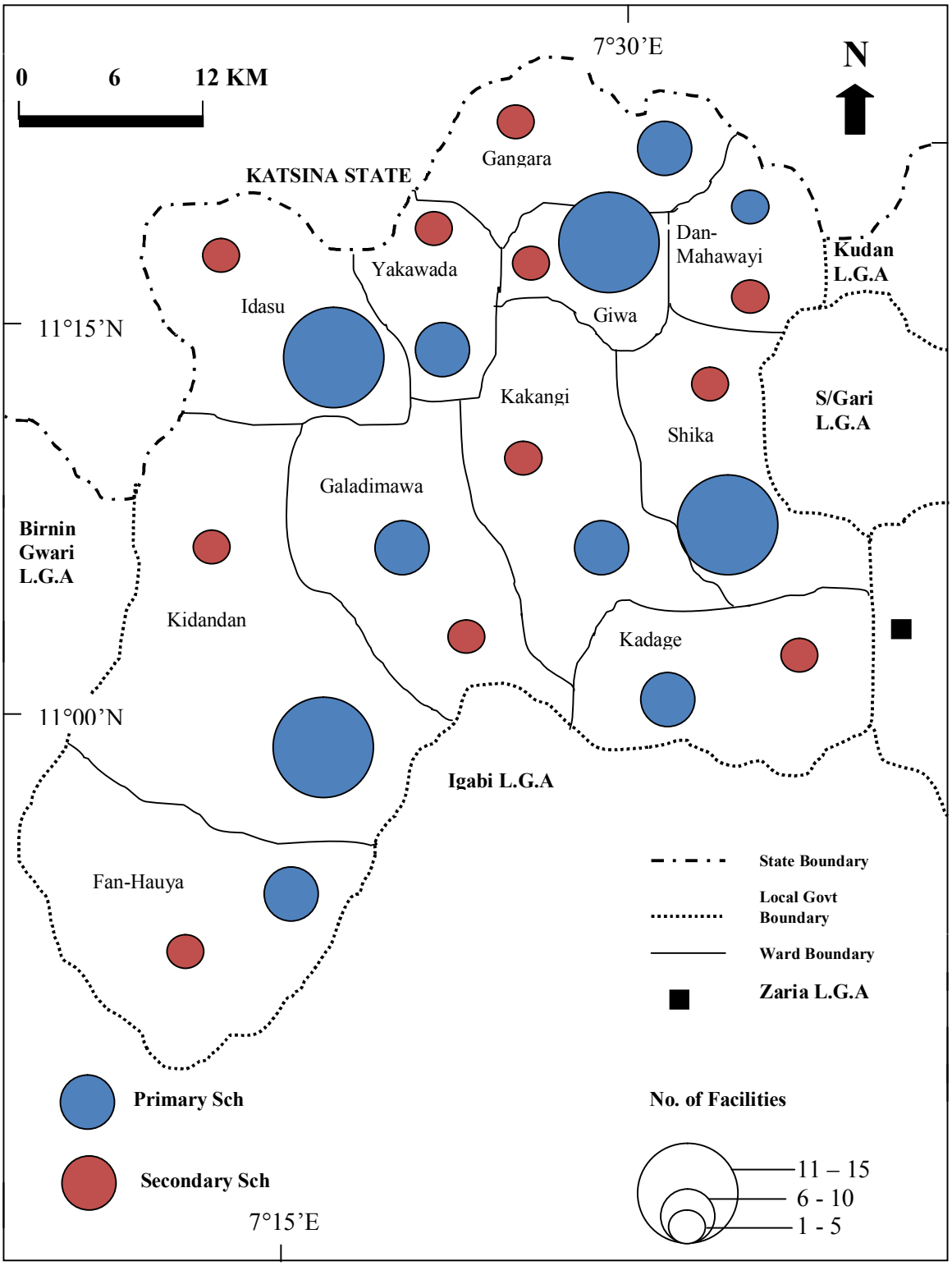


Fig.5.2: Distribution of schools by ward in Giwa L.G.A

Table 5.8: The impacts of school on social development

Ward	*A	%	*B	%	*C	%	*D	%	*E	%	*F	%	None	%
Giwa	12	19.4	9	19.6	7	33.3	14	23.0	7	18.0	15	42.0	5	9.6
Yakawada	4	6.5	5	10.9	4	19.0	10	16.4	3	7.7	2	5.7	2	3.8
Gangara	9	14.5	5	10.9	1	4.8	5	8.2	2	5.1	2	5.7	9	17.3
Dan Mahawayi	3	4.8	1	2.2	-	-	7	11.5	1	2.6	1	3.0	3	5.8
Kadage	1	1.6	3	6.5	-	-	1	1.6	2	5.1	-	-	2	3.8
Shika	19	31.0	13	28.0	3	14.3	12	19.7	4	10.3	10	29.0	2	3.8
Kidan Dan	3	4.8	2	4.3	-	-	2	3.3	7	18.0	-	-	11	21.2
Galadimawa	7	11.3	4	8.9	1	4.8	-	-	2	5.1	3	8.6	3	5.8
Idasu	1	1.6	-	-	5	23.8	3	4.9	7	18.0	-	-	7	13.5
Kakangi	3	4.8	1	2.2	-	-	6	9.8	-	-	1	3.0	5	9.6
Fan Hauya	-	-	3	6.5	-	-	1	1.6	4	10.3	1	3.0	3	5.8
Total	**62 20%**	**100**	**46 15%**	**100**	**21 7%**	**100**	**61 19%**	**100**	**39 12%**	**100**	**35 11%**	**100**	**52 16%**	**100 100%**

*A – Ability to communicate in more than one language, *B – Ability to do calculation with ease *C – Acquired technical skills/vocational training, *D – Ability to learn new skills easily outside of school, *E – Acquired valuable agricultural skills and training, *F – Ability to socialize more easily.

Source: Field Survey, 2011.

Table 5.8 presents respondents' views on the impacts of schools on social development in each ward of the local government. It shows that 20.0% of the respondents are of the view that school enables them to communicate in more than one language while only 7.0% are of the view that school helps them acquire technical skills and vocational training meaning that their level of awareness have increased and they are more open to innovation. Some 16% of the respondents do not have formal education therefore, did not comment on the impact of schools on social development.

5.4 Commercial Infrastructure

The availability of social or commercial infrastructure like banks and other financial institutions in any rural area encourages the provision of credit and other financial services to farmers. Farmers used these services to acquire agricultural inputs that can boost their output. There are only two banks (intercontinental and microfinance bank) in the study area and they are all located in Giwa ward which is the local government headquarters. Table 5.9 shows the number of commercial facilities in each of the eleven wards of Giwa L.G. A. it shows a total of sixteen markets that are both daily and periodic with Kidandan ward having the highest number of markets.

Table 5.9: Distribution of commercial facilities by Ward in Giwa L.G.A

	Commercial Infrastructure		
Ward	**Market**	**Bank**	**Total Number of Infrastructure**
Giwa	1	2	3
Yakawada	1	-	1
Gangara	1	-	1
Dan Mahawayi	1	-	1
Kadage	1	-	1
Shika	2	-	2
Kidan Dan	3	-	3
Galadimawa	1	-	1
Idasu	2	-	2
Kakangi	1	-	1
Fan Hauya	2	-	2
Total	**16**	**2**	**18**

Source; Field Survey, 2011

Market locations in rural areas are exchange points for innovation as well as where agricultural products and industrial goods are purchased. Without the market facilities, it will be difficult for farmers in rural areas to trade their crops profitably. The market places help farmers sell their goods at reasonable prices. As shown in Table 5.10, some 59.2% of the respondents patronize periodic markets, 11.4% patronize daily markets while 29.4% of the respondents patronize both daily and periodic markets. It was found that these markets provide livelihood to the settlers by way of income generation. They also act as sources of revenue to the local government authority.



Plate III: Giwa periodic market located in Giwa ward.

Table 5.10: Market patronage by the respondents

Ward	Periodic Market	%	Daily Market	%	Both periodic & Daily Market	%	Total
Giwa	41	22.0	8	22.2	20	22.0	69
Yakawada	23	12.3	2	5.6	5	5.4	30
Gangara	27	14.4	1	2.8	5	5.4	33
Dan Mahawayi	13	7.0	1	2.8	2	2.2	16
Kadage	7	3.7	-	-	2	2.2	9
Shika	17	9.1	12	33.3	34	36.6	63
Kidan Dan	12	6.4	3	8.3	10	11.0	25
Galadimawa	16	8.6	-	-	4	4.3	20
Idasu	14	7.5	3	8.3	6	6.5	23
Kakangi	10	5.3	2	5.6	4	4.3	16
Fan Hauya	7	3.7	4	11.1	1	1.0	12
Total	**187 59.2%**	**100**	**36 11.4%**	**100**	**93 29.4%**	**100**	**316 100%**

Source; Field Survey, 2011

Table 5.11 shows the number of respondents that patronize bank compared to those that do not. The table shows that only 39% of the respondents patronize bank. This low patronage can be linked to the lack of financial education and trust in the banking system. Another factor is inadequacy in the number of banks available in the study area. Table 5.12 presents the nature of activities in the available banks in Giwa local government. The highest level of transaction as relates to cash deposit, withdrawal and loan to individuals. Similar observation is made in Gangara, Shika and Idasu wards. The lowest level of activities is found in Danmahawayi and FanHauya wards.

Table 5.11: Bank patronage by the respondents

Ward	Do patronise bank	%	Don't patronise bank	%	Total
Giwa	31	25.2	38	19.7	69
Yakawada	16	13.0	14	7.2	30
Gangara	10	8.1	23	11.9	33
Dan Mahawayi	3	2.4	13	6.7	16
Kadage	-	-	9	4.7	9
Shika	42	34.2	21	10.9	63
Kidan Dan	8	6.5	17	8.8	25
Galadimawa	2	1.6	18	9.3	20
Idasu	-	-	23	12.0	23
Kakangi	6	4.9	10	5.2	16
Fan Hauya	5	4.1	7	3.6	12
Total	**123** **39%**	**100**	**193** **61%**	**100**	**316** **100%**

Source; Field Survey, 2011



Plate IV: A bank in Giwa ward.

Table 5.12: Nature of transaction with the bank

Ward	To deposit cash	%	To withdraw cash	%	To get loan	%	To transfer funds	%	None	%	Total
Giwa	12	30	9	24	4	22	6	21	38	19.6	69
Yakawada	7	18	4	11	3	17	2	7	14	7.2	30
Gangara	5	13	2	5	-	-	4	14	22	11.3	33
Dan Mahawayi	-	-	2	5	-	-	1	4	13	6.7	16
Kadage	-	-	-	-	-	-	-	-	9	4.6	9
Shika	10	26	14	38	3	17	15	54	21	10.8	63
Kidan Dan	4	10	-	-	4	22	-	-	17	8.8	25
Galadimawa	-	-	-	-	2	11	-	-	18	9.3	20
Idasu	-	-	-	-	-	-	-	-	23	11.9	23
Kakangi	1	3	4	11	1	5.5	-	-	10	5.2	16
Fan Hauya	-	-	2	5	1	5.5	-	-	9	4.6	12
Total	**39 12.3%**	**100**	**37 11.7%**	**100**	**18 5.7%**	**100**	**28 8.9%**	**100**	**194 61.4%**	**100**	**316 100%**

Source; Field Survey, 2011

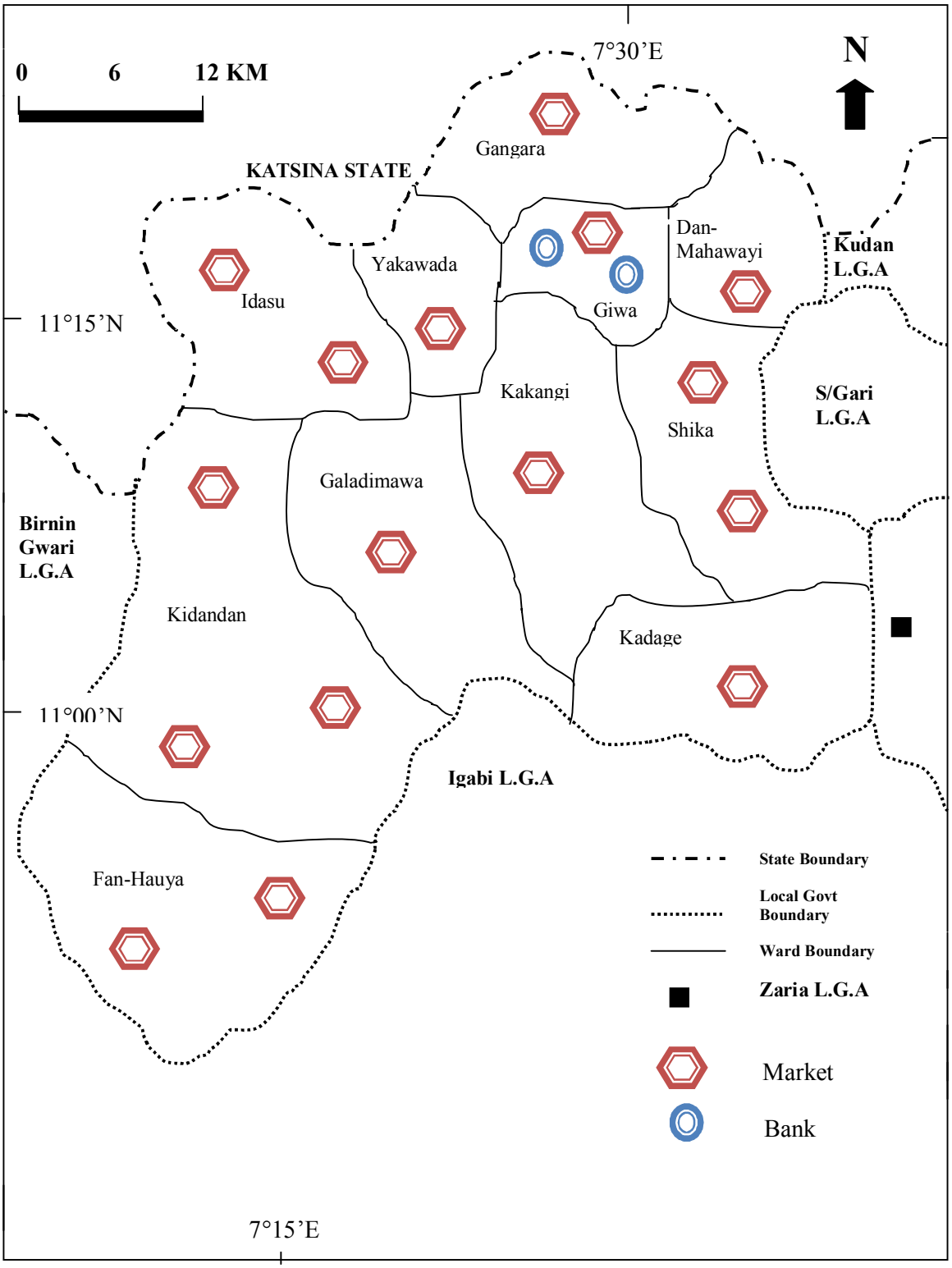


Fig. 5.3: Distribution of markets and banks by ward in Giwa L.G.A

Fig 5.3 shows a fair distribution of commercial facilities, most especially with regards to markets. Data analysis shows that nearly all the wards have markets but those in Giwa, Kidandan and Galadimawa are major periodic markets that attract customers from distant settlements and they deal mainly in agricultural commodities. Only Giwa ward has two banks (i.e., Intercontinental and Microfinance Banks) providing services to very few customers.

Table 5.13: The impact of market on social development

Ward	***A**	**%**	***B**	**%**	***C**	**%**	***D**	**%**	***E**	**%**	**Total**
Giwa	21	21.0	10	23.3	11	27.5	8	22.2	19	19.6	69
Yakawada	8	8.0	1	2.3	5	12.5	10	27.8	6	6.2	30
Gangara	13	13.0	7	16.3	-	-	3	8.3	10	10.3	33
Dan Mahawayi	5	5.0	3	7.0	-	-	1	2.8	7	7.2	16
Kadage	2	2.0	-	-	2	5.0	-	-	5	5.2	9
Shika	18	18.0	10	23.3	12	30.0	8	22.2	15	15.5	63
Kidan Dan	6	6.0	3	7.0	8	20.0	-	-	8	8.2	25
Galadimawa	5	5.0	3	7.0	-	-	3	8.3	9	9.3	20
Idasu	10	10.0	2	4.6	2	5.0	1	2.8	8	8.2	23
Kakangi	9	9.0	4	9.3	-	-	-	-	3	3.0	16
Fan Hauya	3	3.0	-	-	-	-	2	5.6	7	7.3	12
Total	**100 32%**	**100**	**43 14%**	**100**	**40 13%**	**100**	**36 11%**	**100**	**97 30%**	**100**	**316 100%**

*A – A major source of income, *B – Creates more social contact *C – Keeps oneself up to date by way of window shopping, *D – Acts as an agent of innovation diffusion,
*E – provides source of employment.
Source: Field Survey, 2011.

Respondents' views on the contribution of market to social development is reflected in Table 5.13, where it can be seen that 32% of the respondents are of the view that market serves as a major source of income to them, likewise 30 per cent of the respondents admitted that it provides them with employment. Market, no doubt acts as an agent of innovation diffusion according to 11% of the total respondents interviewed.

Table 5.14: The impact of bank on social development

Ward	*A	%	*B	%	*C	%	*D	%	None	%	Total
Giwa	19	34.0	3	10.3	3	30.0	6	21.4	38	19.7	69
Yakawada	7	12.5	4	13.8	-	-	5	17.9	14	7.3	30
Gangara	6	10.7	-	-	1	10.0	3	10.7	23	12.0	33
Dan Mahawayi	-	-	-	-	1	10.0	2	7.1	13	6.7	16
Kadage	-	-	-	-	-	-	-	-	9	4.7	9
Shika	12	21.4	20	69.0	5	50.0	5	17.9	21	10.9	63
Kidan Dan	3	5.4	1	3.4	-	-	4	14.3	17	8.8	25
Galadimawa	2	3.6	-	-	-	-	-	-	18	9.3	20
Idasu	-	-	-	-	-	-	-	-	23	12.0	23
Kakangi	3	5.4	1	3.4	-	-	2	7.1	10	5.0	16
Fan Hauya	4	7.1	-	-	-	-	1	3.6	7	3.6	12
Total	**56 18%**	**100**	**29 9%**	**100**	**10 3%**	**100**	**28 9%**	**100**	**193 61%**	**100**	**316 100%**

*A – A source of capital, *B – It gives a sense of security *C – A source of information, *D – It gives pride/sense of belonging.
Source: Field Survey, 2011.

Table 5.14 shows the impact of bank on social development in the study area, 18 per cent of the respondents believe that bank serves as a good source of capital. Keeping cash at home is risky as a result people use bank as an alternative way of keeping their cash and other valuables safely, 9 per cent of the respondents shared the same idea that bank gives a sense of security while another 9 per cent believe that bank gives pride and sense of belonging particularly in rural areas where not every person transacts with bank.

5.5 Administrative Infrastructure

Table 5.15 shows that only four of the eleven wards have a police station while all the wards have police post. Local government headquarters as well as area development offices were found in only four wards (Giwa, Kadage, Shika and Idasu). The study area has five courts out of which two are located in Idasu ward, while Giwa, Kidandan and Galadimawa have one court.

Table 5.15: Distribution of Administrative Facilities by Ward in Giwa L.G.A

	Administrative Infrastructure				
Ward	**Local Government Office**	**Court**	**Police Station**	**Police Post**	**Total Number of Infrastructure**
Giwa	1	1	1	1	4
Yakawada	-	-	-	1	1
Gangara	-	-	1	1	2
Dan Mahawayi	-	-	-	1	1
Kadage	1	-	-	1	2
Shika	1	-	1	1	3
Kidan Dan	-	1	1	1	3
Galadimawa	-	1	-	1	2
Idasu	1	2	-	1	4
Kakangi	-	-	-	1	1
Fan Hauya	-	-	-	1	1
Total	**4**	**5**	**4**	**11**	**24**

Source; Field Survey, 2011

Table 5.16 reflects the views of respondents on the impact of local government office location on social development. Thirty four per cent (34.0%) of the respondents believed that the location of local government office boots trade, 20.0 per cent are of the view that it increases administrative services that are enjoyed more by Giwa ward being the local

government headquarters while 27.0 per cent opined that increase in social amenities can be linked to the location of local government offices.

Table 5.16: The impact of local government office location on social development

Ward	*A	%	*B	%	*C	%	*D	%	Total
Giwa	18	16.7	20	24.7	17	27.0	14	21.9	69
Yakawada	7	6.5	11	13.6	5	8.0	7	11.0	30
Gangara	13	12.0	6	7.4	9	14.3	4	6.3	33
Dan Mahawayi	10	9.3	-	-	4	6.3	2	3.1	16
Kadage	4	3.7	2	2.5	1	1.6	2	3.1	9
Shika	31	29.0	15	18.5	5	8.0	12	18.8	63
Kidan Dan	3	2.8	-	-	9	14.3	14	21.9	25
Galadimawa	5	4.6	11	13.6	4	6.3	-	-	20
Idasu	6	5.6	9	11.1	2	3.2	6	9.4	23
Kakangi	4	3.7	4	4.9	7	11.1	1	1.6	16
Fan Hauya	7	6.5	3	3.7	-	-	2	3.1	12
Total	**108 34%**	**100**	**81 26%**	**100**	**63 20%**	**100**	**64 20%**	**100**	**316 100%**

*A – It boosts trade, *B – It increases services, *C – It increases social amenities,
*D – It increases new housing construction and population.
Source: Field Survey, 2011.

Table 5.17 shows the differences in opinion among the respondents regarding the role of police in the development of rural areas. Some 43.0 per cent believe that police serve as deterrents to criminals while 29 per cent said that presence of police brings about low crime rate, the least is immediate prosecution of criminals which accounts for 12 per cent.

Table 5 17: The impact of police station/post on social development

Ward	*A	%	*B	%	*C	%	*D	%	Total
Giwa	28	20.6	7	18.4	23	25.3	11	21.6	69
Yakawada	10	7.4	-	-	17	18.7	3	5.9	30
Gangara	13	9.6	2	5.3	11	12.1	7	13.7	33
Dan Mahawayi	10	7.4	2	5.3	4	4.4	-	-	16
Kadage	4	2.9	-	-	3	3.3	2	4.0	9
Shika	31	22.8	12	31.6	9	10.0	11	21.6	63
Kidan Dan	9	6.6	5	13.2	7	7.7	4	7.8	25
Galadimawa	5	3.7	7	18.4	4	4.4	4	7.8	20
Idasu	16	11.8	-	-	2	2.2	5	9.8	23
Kakangi	7	5.1	2	5.3	3	3.3	4	7.8	16
Fan Hauya	3	2.2	1	2.6	8	8.8	-	-	12
Total	**136 43%**	**100**	**38 12%**	**100**	**91 29%**	**100**	**51 16%**	**100**	**316 100%**

*A – Police serve as a deterrent to criminals, *B – Immediate prosecution of criminals
*C – It brings about low crime rate *D – It gives a sense of security to people.
Source: Field Survey, 2011.

Table 5.18 presents the views of respondents regarding the impact of court on social development, while 26.9 per cent of the respondents in Giwa ward believed that court improves satisfaction with the outcome in which a dispute is resolved among disputants and 30 per cent of the respondents in Shika ward agreed that court increases opportunities to resolve a dispute in a way satisfactory to the parties. Only 14 per cent of the total respondents believed that court increases likelihood of the parties complying with the remedies or solutions generated by the courts.

Table 5.18: The impact of court on social development

Ward	*A	%	*B	%	*C	%	*D	%	Total
Giwa	32	26.9	10	12.5	15	34.1	12	16.4	69
Yakawada	9	7.6	4	5.0	7	16.0	10	13.7	30
Gangara	13	10.9	6	7.5	10	22.7	4	5.5	33
Dan Mahawayi	3	2.5	4	5.0	2	4.5	7	9.6	16
Kadage	5	4.2	1	1.3	-	-	3	4.1	9
Shika	19	16.0	24	30.0	3	6.8	17	23.3	63
Kidan Dan	12	10.1	9	11.2	-	-	4	5.5	25
Galadimawa	10	8.4	7	8.8	1	2.3	2	2.7	20
Idasu	7	5.9	4	5.0	3	6.8	9	12.3	23
Kakangi	5	4.2	8	10.0	3	6.8	-	-	16
Fan Hauya	4	3.4	3	3.7	-	-	5	6.8	12
Total	**119 38%**	**100**	**80 25%**	**100**	**44 14%**	**100**	**73 23%**	**100**	**316 100%**

*A – Improved satisfaction with the outcome in which a dispute is resolved among disputants,
*B – Increased opportunities to resolve a dispute in a way satisfactory to the parties,
*C – Increased likelihood of the parties complying with the remedies or solutions generated by courts,
*D – Provides faster resolution/reduced time in dispute.

Source: Field Survey, 2011.

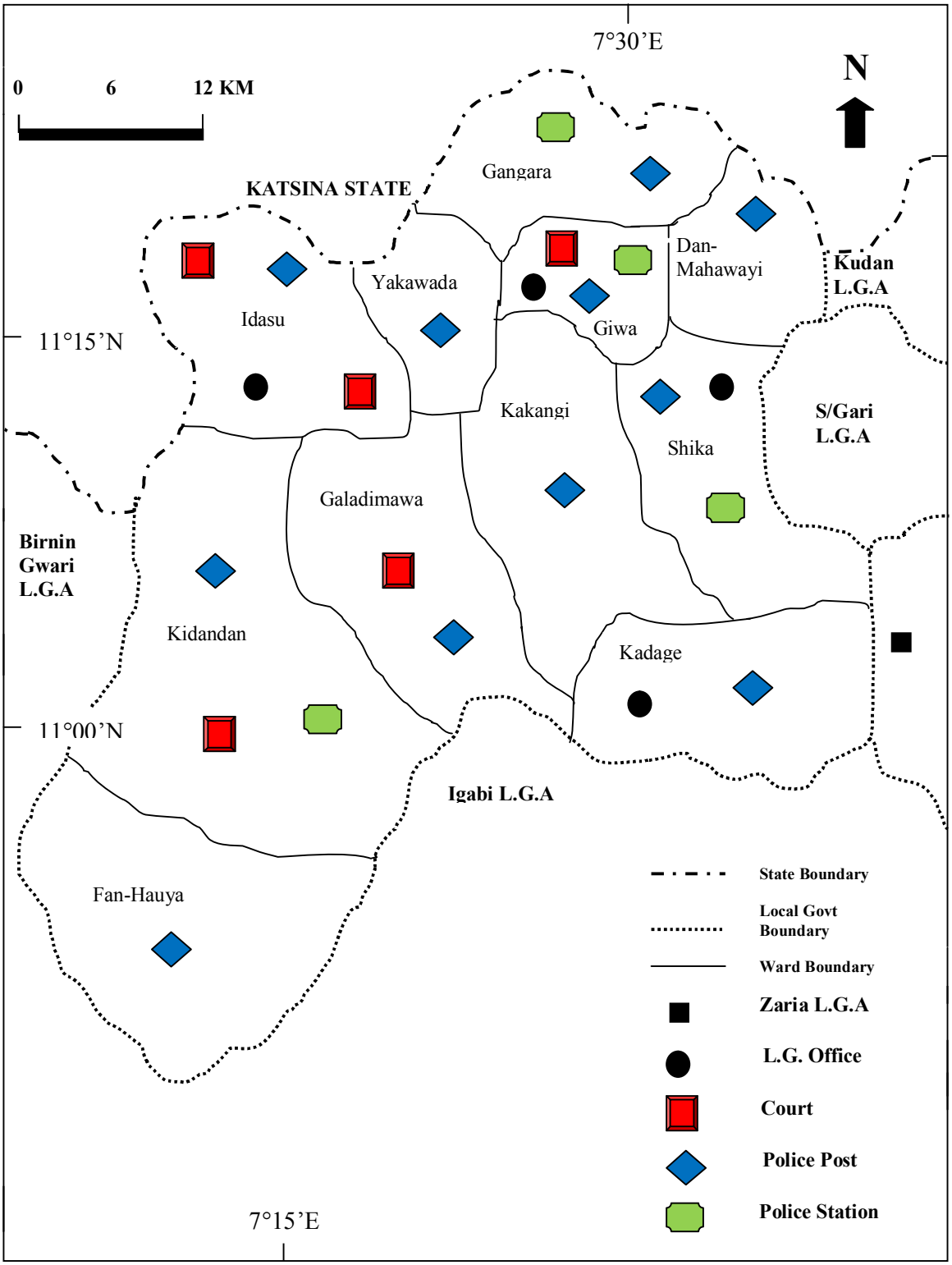


Fig. 5.4: Distribution of administrative facilities by ward in Giwa L.G.A

5.6 Public Utilities

Water is highly needed by man to support life. The availability of healthy water helps to prevent communicable diseases. Water sources like rivers and dams can also be useful for irrigation purposes during the dry season. This in turn will definitely increase farmers' output which can ultimately reduce the number of youth migrating to urban areas. Likewise, electricity is very important for it has become a necessity not only in urban areas but also in rural areas. People use electricity for different purposes which can be commercial or domestic. Table 5.19 presents a summary of findings on the status of public utilities in the study area.

Table 5.19: Public Utilities by Ward in Giwa L.G.A

	Public Utility Infrastructure			
Ward	**Electricity**	**Borehole**	**Well**	**Total Number of Infrastructure**
Giwa	✓	25	40	66
Yakawada	✓	17	21	39
Gangara	✓	22	18	41
Dan Mahawayi	✓	18	20	39
Kadage	✓	15	37	53
Shika	✓	30	30	61
Kidan Dan	✓	19	16	36
Galadimawa	✓	12	19	32
Idasu	✓	21	23	45
Kakangi	✓	18	32	51
Fan Hauya	✓	11	15	27
Total	**11**	**208**	**271**	**490**

Source; Field Survey, 2011

The table shows the distribution of public utilities by ward in the study area, as can be seen all the eleven wards enjoy electricity supply from the Power Holding Company of Nigeria (PHCN). However, electric supply from this source was reported to be epileptic. Field work report shows that there are a total of 208 bore-holes and 271 public wells in the study area. Shika ward has 30 bore-holes which is the largest number while Giwa ward has the largest number of public wells of about 40.



Plate V: A bore-hole at Dan Mahawayi ward.

5.6.1 Electricity

Table 5.20: Usage of electricity by the respondents

Ward	Yes	%	No	%	Total
Giwa	52	22.7	17	19.5	69
Yakawada	19	8.3	11	12.6	30
Gangara	15	6.6	18	20.7	33
Dan Mahawayi	13	5.7	3	3.4	16
Kadage	9	3.9	-	-	9
Shika	60	26.2	3	3.4	63
Kidan Dan	17	7.4	8	9.2	25
Galadimawa	13	5.7	7	8.0	20
Idasu	11	4.8	12	13.8	23
Kakangi	13	5.7	3	3.4	16
Fan Hauya	7	3.0	5	6	12
Total	**229** **72%**	**100**	**87** **28%**	**100**	**316** **100%**

Source: Field Survey, 2011

Table 5.20 presents the proportion respondents using electricity. It revealed 72.0% that use electricity. It was found out that Shika ward has the largest number of people that use electricity (about 26.2%) followed by Giwa (22.7%) and then Yakawada which is 8.3 per cent. However, Gangara ward accounted for 20.7 per cent of those that do not use electricity while Kadage ward recorded zero.

Table 5.21: Use of Alternative Energy

Ward	Leister Engine	%	Portable Generator	%	Solar Device	%	Car Battery	%	None	%	Total
Giwa	21	25.9	34	28.8	-	-	3	16	11	11.2	69
Yakawada	8	9.9	5	4.2	-	-	-	-	17	17.3	30
Gangara	11	13.6	8	6.8	-	-	5	26	9	9.2	33
Dan Mahawayi	2	2.5	2	1.7	-	-	1	5.0	11	11.2	16
Kadage	3	3.7	2	1.7	-	-	-	-	4	4.1	9
Shika	15	18.5	40	33.9	-	-	-	-	8	8.2	63
Kidan Dan	9	11.0	5	4.2	-	-	3	16	8	8.2	25
Galadimawa	3	3.7	7	6.0	-	-	4	21	6	6.1	20
Idasu	4	5	1	0.8	-	-	3	16	15	15.3	23
Kakangi	2	2.5	8	6.8	-	-	-	-	6	6.1	16
Fan Hauya	3	3.7	6	5.1	-	-	-	-	3	3.1	12
Total	**81 25.6%**	**100**	**118 37.4%**	**100**	**0 0%**	**100**	**19 6%**	**100**	**98 31%**	**100**	**316 100%**

Source: Field Survey, 2011

Electricity supply is known to be epileptic as a result, people look for an alternative way of generating electricity for smooth running of their businesses. In Table 5.21 alternative energy sources used by the respondents are shown. They include portable generator, which are used by 37.4 per cent the respondents, car battery accounted for only 6 per cent and leister engine accounted for about 25.6 per cent. Leister engines use deseals and are widely used for grinding food in the study area use. Solar energy is not used at all.

Among the wards, the use of leister engine in Giwa ward accounted for 25.9 per cent which is the highest, while in Shika ward 33.9 per cent use portable generators. Gangara ward has the largest number of respondents that use car battery to generate energy.

Table 5.22: Respondents willingness to pay more if Electricity Supply is steadied

Ward	Yes	%	No	%	Total
Giwa	46	25.4	23	17.0	69
Yakawada	14	7.7	16	11.9	30
Gangara	14	7.7	19	14.1	33
Dan Mahawayi	9	5.0	7	5.2	16
Kadage	5	2.8	4	3.0	9
Shika	52	28.7	11	8.1	63
Kidan Dan	7	3.9	18	13.3	25
Galadimawa	9	5.0	11	8.1	20
Idasu	4	2.2	19	14.1	23
Kakangi	11	6.1	5	3.7	16
Fan Hauya	10	5.5	2	1.5	12
Total	**181** **57%**	**100**	**135** **43%**	**100**	**316** **100%**

Source: Field Survey, 2011

Respondents' willingness to pay more if electricity supply is steadied is reflected in Table 5.22 where 57 per cent of the respondents agreed to pay more while 43 per cent did not agree. A higher number of people agreed to pay more in Shika and Giwa wards because these wards are the major urban centres in the study area. Only 2.2 per cent of the respondents said they would pay more in Idasu ward. However, being the local government headquarters, Giwa ward account for the highest number of respondents that are not willing to pay more (about 17%) followed by Gangara and Idasu wards each having 14.1 per cent of the respondents.

Table 5.23: The impact of electricity on social development

Ward	*A	%	*B	%	*C	%	*D	%	*E	%	None	%	Total
Giwa	15	23.0	8	13.0	5	15.6	10	24.4	14	36.8	17	21.5	69
Yakawada	4	6.3	2	3.2	5	15.6	3	7.3	5	13.2	11	14.0	30
Gangara	3	4.7	4	6.5	-	-	6	14.6	2	5.3	18	22.8	33
Dan Mahawayi	1	1.7	7	11.3	-	-	3	7.3	2	5.3	3	3.8	16
Kadage	5	7.8	2	3.2	-	-	1	2.4	1	2.6	-	-	9
Shika	19	30.0	23	37.1	8	25.0	4	9.8	6	15.8	3	3.8	63
Kidan Dan	5	7.8	6	9.7	3	9.4	3	7.3	-	-	8	10.1	25
Galadimawa	2	3.1	5	8.1	2	6.3	-	-	4	10.5	7	8.9	20
Idasu	6	9.4	1	1.6	-	-	2	4.9	2	5.3	12	15.2	23
Kakangi	2	3.1	3	4.8	3	9.4	6	14.6	2	5.3	-	-	16
Fan Hauya	2	3.1	1	1.6	6	18.8	3	7.3	-	-	-	-	12
Total	**64 20.3%**	**100**	**62 19.6%**	**100**	**32 10.1%**	**100**	**41 13%**	**100**	**38 12%**	**100**	**79 25%**	**100**	**316 100%**

*A – Income generation, *B – Boosts business/services *C – Reduces operating cost,
*D – Illuminates houses, *E – Keeps one update in terms of current events on news media.
Source: Field Survey, 2011

The impact of electricity on social development is reflected in Table 5.23 in which 20.3 per cent of the respondents were of the view that electricity facilitates their income generating capacity. Another 19.6 per cent believed that it boosts businesses and services. Only 12 per cent of the respondents agreed that electricity keeps them up to date in terms of current events on news media. The findings in the table shows that electricity supply in some wards like Giwa, Shika, Kakangi is attested to boosting income generating activities, boosts earnings and reduce operating cost.

5.6.2 Water Supply

There are different sources of water supply in the local government, prominent ones include well, borehole, tap and river or stream water. All these sources are used for both domestic and commercial activities. Table 5.24 shows the distribution of respondents based on major sources of water, bore-hole as a source accounted for the highest percentage of respondents which is 47.2 per cent followed by public wells which is 29.4 per cent.

Table 5.24: Sources of Water

Ward	Well	%	Borehole	%	Tap	%	River/Stream	%	Total
Giwa	20	21.5	33	22.1	-	-	16	25.0	69
Yakawada	6	6.5	9	6.0	10	100	5	7.8	30
Gangara	13	14.0	11	7.4	-	-	9	14.0	33
DanMahawayi	5	5.4	5	3.4	-	-	6	9.3	16
Kadage	3	3.2	5	3.4	-	-	1	1.6	9
Shika	17	18.3	36	24.2	-	-	10	15.6	63
Kidan Dan	8	8.6	13	8.7	-	-	4	6.3	25
Galadimawa	10	10.8	9	6.0	-	-	1	1.6	20
Idasu	4	4.3	16	10.7	-	-	3	4.7	23
Kakangi	4	4.3	7	4.7	-	-	5	7.8	16
Fan Hauya	3	3.2	5	3.4	-	-	4	6.3	12
Total	**93**	**100**	**149**	**100**	**10**	**100**	**64**	**100**	**316**
	29.4%		**47.2%**		**3.2%**		**20.2%**		**100%**

Source: Field Survey, 2011

Rivers and streams also serve as important sources of water to rural people both accounted for 20.2 per cent of the respondents needs. The least is tap water which was available only in Yakawada ward, it accounted for just 3.2 per cent. In terms of bore-hole, Shika ward has the highest number of respondents of about 24.2 per cent, kadage and Fan Hauya wards have the least number of respondents using wells as major source of water attested to by just 3.2 per cent each.

Table 5.25: Proximity to Sources of Water

Ward	Less than 1km	%	1-3km	%	Greater than 3km	%	Total
Giwa	19	16.8	37	26.1	13	21.3	69
Yakawada	7	6.2	13	9.2	10	16.3	30
Gangara	7	6.2	15	10.6	11	18.0	33
Dan Mahawayi	4	3.5	9	6.3	3	4.9	16
Kadage	5	4.4	4	2.8	-	-	9
Shika	33	29.2	25	17.6	5	8.2	63
Kidan Dan	5	4.4	12	8.5	8	13.1	25
Galadimawa	7	6.2	10	7.0	3	4.9	20
Idasu	12	10.6	6	4.2	5	8.2	23
Kakangi	10	8.8	4	2.8	2	3.3	16
Fan Hauya	4	3.5	7	4.9	1	1.6	12
Total	**113 35.8%**	**100**	**142 44.9%**	**100**	**61 19.3%**	**100**	**316 100%**

Source: Field Survey, 2011

Proximity to sources of water has direct influence on the socio-economic life of people particularly those living in rural areas. In places where these water supply sources are few, many respondents at times were seen to trek long distances before getting to these water sources. They also often queue for water. Table 5.25 shows respondents' proximity to sources of water, where 44.9 per cent of the respondents live between one to three kilometers of a water source, 35.8 percent live less than one kilometer while 19.3 per cent of the respondents live more than three kilometers from a source. Shika ward has the highest number of respondents living less than one kilometer of a water source (about 29.2%) followed by Giwa ward which is 16.8 per cent.

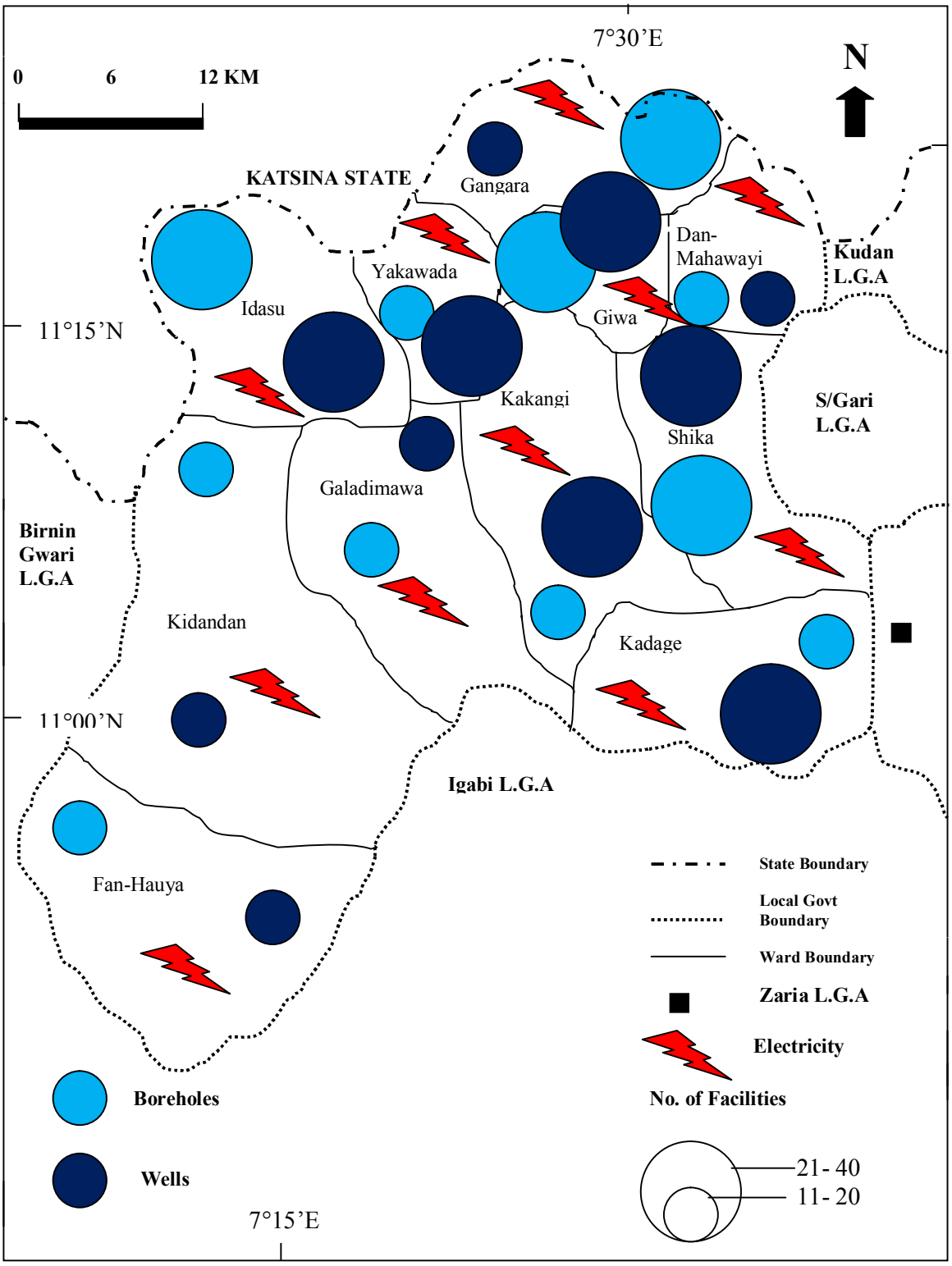


Fig. 5.5: Distribution of public utilities by ward in Giwa L.G.A

Table 5.26: The impact of water supply on social development

Ward	*A	%	*B	%	*C	%	*D	%	*E	%	Total
Giwa	25	22.5	16	30.2	9	13.2	12	23.1	7	21.9	69
Yakawada	10	9.0	4	7.5	4	5.9	7	13.5	5	15.6	30
Gangara	12	10.8	4	7.5	11	16.2	3	5.8	3	9.4	33
Dan Mahawayi	5	4.5	2	3.8	7	10.3	2	3.8	-	-	16
Kadage	3	2.7	1	1.9	4	5.9	-	-	1	3.1	9
Shika	29	26.1	10	18.9	6	8.8	14	27.0	4	12.5	63
Kidan Dan	8	7.2	6	11.3	3	4.4	5	9.6	3	9.4	25
Galadimawa	5	4.5	2	3.8	10	14.7	-	-	3	9.4	20
Idasu	11	10.0	3	5.7	2	2.9	2	3.8	5	15.6	23
Kakangi	3	2.7	-	-	10	14.7	3	5.8	-	-	16
Fan Hauya	-	-	5	9.4	2	2.9	4	7.7	1	3.1	12
Total	**111 35%**	**100**	**53 17%**	**100**	**68 22%**	**100**	**52 16%**	**100**	**32 10%**	**100**	**316 100%**

*A – Accessibility has reduced time and distance considerably, *B – Children are relieved from travelling far distance to fetch water, *C – It facilitates irrigation farming,
*D – It provides clean and drinkable water which has reduced water borne disease infection, *E – Its availability has increased its usage.
Source: Field Survey, 2011.

Respondents' views on the impact of water supply on social development is reflected in Table 5.26 in which 35 percent of respondents are of the view that accessibility to sources of water has reduced both in time and distance considerably. Another 22 per cent of the respondents believed that water sources facilitates irrigation farming. Gangara ward has the highest percentage of respondents that believed water sources facilitates irrigation farming while 30.2 per cent in Giwa ward agreed that children are relieved from travelling far distance to fetch water. Shika ward accounted for the largest number of respondents that believed that one of the major contributions of water sources to social development is that it provides clean and drinkable water which has reduced water borne disease infections in the study area.

5.7 Transport and Communication Infrastructure

Table 5.27: Distribution of Transport and Communication Facilities by Ward in Giwa L.G.A

	Transport & Comm Infrastructure					
Ward	**H/W Road**	**T/Unt Road**	**M/P**	**TL/M**	**P/O**	**Total Number of Infrastructure**
Giwa	1	24	2	6	1	34
Yakawada	1	13	1	-	-	15
Gangara	1	16	2	-	-	19
Dan Mahawayi	-	15	1	-	-	16
Kadage	-	11	1	2	-	14
Shika	1	17	2	5	1	26
Kidan Dan	-	17	3	-	-	20
Galadimawa	-	13	1	-	-	14
Idasu	-	16	2	3	-	21
Kakangi	-	14	1	-	-	15
Fan Hauya	-	21	1	1	-	23
Total	**4**	**177**	**17**	**17**	**2**	**217**

H/W Road – Highway Road, T/UNT Road - Tarred/Untarred Road, M/P – Motor Park, TL/M – Telecommunication Mast, P/O – Post Office.

Source; Field Survey, 2011

Table 5.27 shows the distribution of transport and communication facilities by ward in the study area. There are a total of 217 transport and telecommunication facilities. The table shows that sokoto road which is the only Highway in the study area, passes through four wards: Giwa, Yakawada, Gangara and Shika wards. It also shows the number of both tarred and untarred roads in the study area. There are 17 motor parks and also a total of 17 telecommunication masts. Only two post office buildings were found in the study area, one each in Shika and the other in Giwa wards.

Table 5.28: Summary of ownership/ use of modes of transportation

Ward	Bicycle	%	Motorcycle	%	Car	%	Truck	%	Donkey	%	None	%
Giwa	6	11.8	31	19.7	9	27.3	12	37.5	3	27.2	8	25
Yakawada	4	7.8	17	11.0	3	9.1	-	-	-	-	6	18.7
Gangara	12	23.5	14	9.0	-	-	2	6.3	2	18.2	3	9.4
Dan Mahawayi	6	11.8	5	3.2	-	-	-	-	2	18.2	3	9.4
Kadage	2	3.9	4	2.5	-	-	1	3.1	1	9.1	1	3.1
Shika	4	7.8	35	22.3	16	48.5	3	9.3	-	-	5	15.6
Kidan Dan	5	9.8	12	7.6	3	9.1	4	12.5	-	-	1	3.1
Galadimawa	3	6.0	12	7.6	-	-	4	12.5	1	9.1	-	-
Idasu	2	3.9	15	9.6	-	-	4	12.5	-	-	2	6.3
Kakangi	5	9.8	4	2.5	2	6.0	2	6.3	-	-	3	9.4
Fan Hauya	2	3.9	8	5.1	-	-	-	-	2	18.2	-	-
Total	**51 16%**	**100**	**157 50%**	**100**	**33 10%**	**100**	**32 10%**	**100**	**11 4%**	**100**	**32 10%**	**100**

Source: Field Survey, 2011

The means transportation used by the respondents are reflected in table 5.28 where about half of them use motorcycle, 16 per cent use bicycle while the use of animals particularly donkeys were only by 4 per cent. Those that do not own any means of transportation accounted for 10 per cent. Use and ownership of bicycle is high in Gangara ward by 23.5 per cent because of the nature of the roads. In Shika only 22.3 per cent of the respondents use motorcycle while 48.5 per cent use car. Trucks are mainly used to convey farm produce to markets for sale, this is the case in Giwa ward where 37.5 per cent of the respondents use trucks.



Plate VI: Untarred road at Fan Hauya ward.

Table 5.29: Proximity to motorable road

Ward	Less than 1km	%	1-3km	%	More than 3km	%	Total
Giwa	26	25.2	32	20.6	11	19.0	69
Yakawada	10	9.7	16	10.3	4	6.9	30
Gangara	7	6.8	21	13.5	5	8.6	33
Dan Mahawayi	9	8.7	4	2.6	3	5.2	16
Kadage	2	2.0	6	3.9	1	1.7	9
Shika	29	28.0	30	19.4	4	6.9	63
Kidan Dan	8	7.8	13	8.4	4	6.9	25
Galadimawa	3	2.9	5	3.2	12	20.7	20
Idasu	5	4.9	10	6.5	8	13.8	23
Kakangi	2	2.0	10	6.5	4	6.9	16
Fan Hauya	2	2.0	8	5.1	2	3.4	12
Total	**103 32.6%**	**100**	**155 49.0%**	**100**	**58 18.4%**	**100**	**316 100%**

Source: Field Survey, 2011

Availability of good road network enhances free movement of both people and goods and without doubt people tend to reside close to or where there is easier access to roads in order to drive maximum benefit. Table 5.29 shows the respondents' proximity to motorable roads in the different wards of the study area. For example, about 28 per cent of the respondents in Shika resided less than one kilometer to motorable road, followed by Giwa. Galadimawa has the highest number of respondents that lived more than three kilometers away from any motorable road which is a reflection of the inadequacy of roads in the ward.

Figure 5.6 presents a pictorial view of the transport network in Giwa L.G where a single high way called Sokoto Road passes through some of the wards towards Funtua in Katsina State. Also tarred roads and railway line (although non functional) are shown on the map. However, the map presents a general picture of how inadequate road network is in the study area.

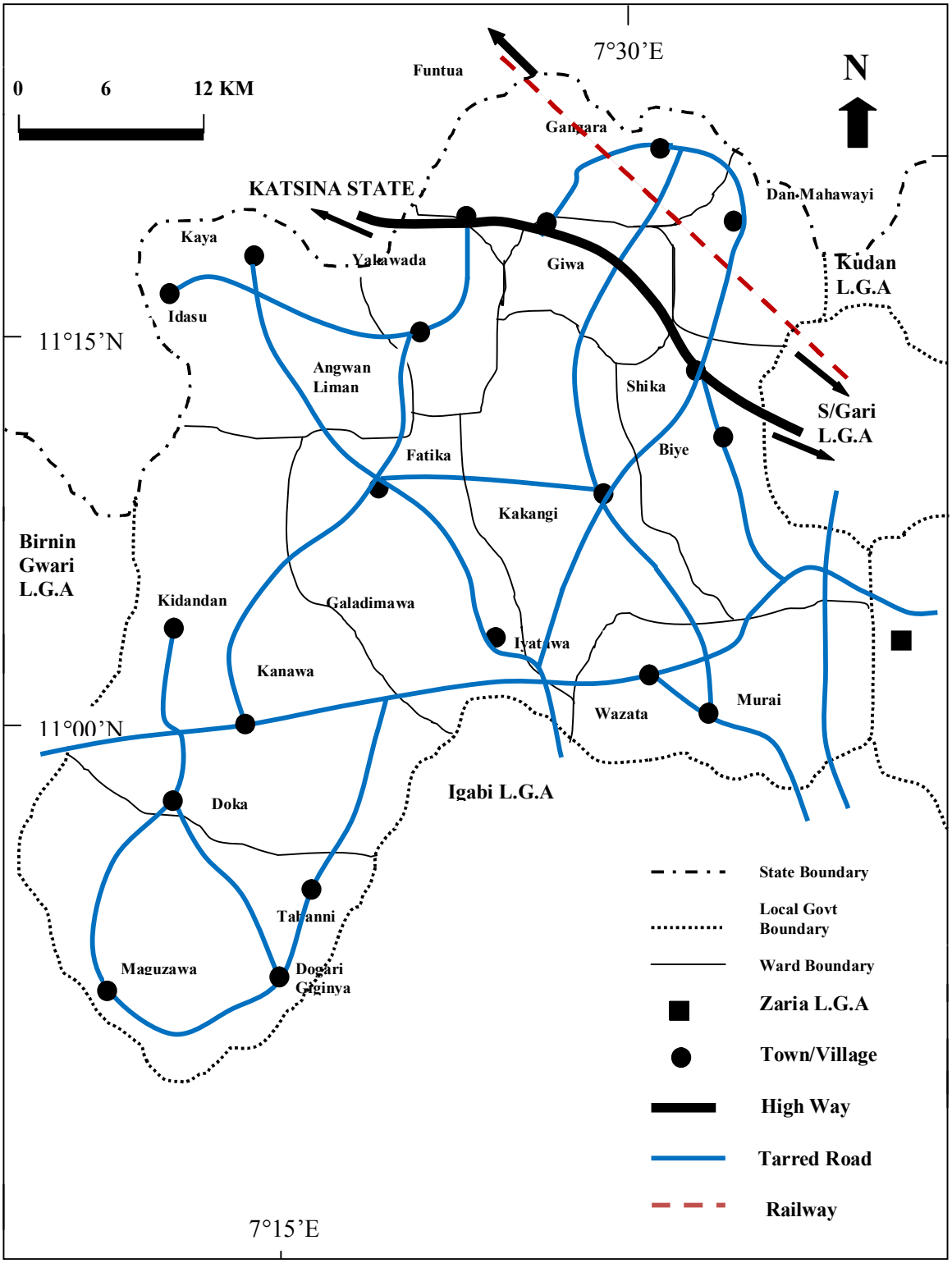


Fig. 5.6: Road transport networks in Giwa L. G. A

Table 5.30: The impact of roads on social development

Ward	*A	%	*B	%	*C	%	*D	%	*E	%	Total
Giwa	17	18.3	22	27.5	7	23.3	15	22.4	8	17.4	69
Yakawada	6	6.5	9	11.3	3	10.0	7	10.4	5	10.9	30
Gangara	15	16.0	6	7.5	-	-	12	18.0	-	-	33
Dan Mahawayi	-	-	6	7.5	3	10.0	-	-	7	15.2	16
Kadage	5	5.4	2	2.5	-	-	2	3.0	-	-	9
Shika	25	26.9	19	23.8	5	16.7	10	15.0	4	8.7	63
Kidan Dan	10	10.8	-	-	7	23.3	2	3.0	6	13.0	25
Galadimawa	8	8.6	5	6.3	2	6.7	5	7.5	-	-	20
Idasu	5	5.4	4	5.0	-	-	9	13.4	5	10.9	23
Kakangi	2	2.2	4	5.0	3	10.0	-	-	7	15.2	16
Fan Hauya	-	-	3	3.8	-	-	5	7.5	4	8.7	12
Total	**93** **29.4%**	**100**	**80** **25%**	**100**	**30** **9.4%**	**100**	**67** **21.2%**	**100**	**46** **15%**	**100**	**316** **100%**

*A – Reduces travel time, *B – Lower prices of hauling produce to the market,
*C – provide more comfortability, *D – increases mobility, *E – Reduces vehicle operating cost.
Source: Field Survey, 2011.

Table 5.30 presents respondents' views regarding the impact of roads on the social development of rural areas in which 29.4 per cent of the respondents are of the view that roads have reduced travel time while 21.2 per cent believed that the presence of roads have increased mobility. The least is 9.4 per cent which represents respondents that believed roads to be more comfortable. There are more respondents in Giwa ward that are of the view that roads have lowered the prices of hauling produce to the market. Kakangi and Danmahawayi wards have the same number of respondents who opined that roads have reduced vehicle operating cost.

Table 5.31: Distribution of respondents according to GSM services used

Ward	GLO	%	MTN	%	ZAIN	%	*S/C	%	*V/F	%	No Any	%	Total
Giwa	37	23.9	12	21.1	5	22.0	7	26.0	1	14.3	7	14.9	69
Yakawada	13	8.4	7	12.2	-	-	4	14.8	3	42.8	3	6.4	30
Gangara	20	13.0	4	7.0	6	26.0	-	-	-	-	3	6.4	33
Dan Mahawayi	5	3.2	2	3.5	4	17.4	-	-	-	-	5	10.6	16
Kadage	5	3.2	1	1.8	-	-	1	3.7	-	-	2	4.3	9
Shika	32	20.6	16	28.0	3	13.0	9	33.3	1	14.3	2	4.3	63
Kidan Dan	12	7.7	5	8.8	-	-	3	11.1	-	-	5	10.6	25
Galadimawa	14	9.0	1	1.8	1	4.3	-	-	-	-	4	8.5	20
Idasu	8	5.2	5	8.8	-	-	2	7.4	2	28.6	6	12.7	23
Kakangi	5	3.2	2	3.5	1	4.3	1	3.7	-	-	7	14.9	16
Fan Hauya	4	2.6	2	3.5	3	13.0	-	-	-	-	3	6.4	12
Total	**155 49%**	**100**	**57 18%**	**100**	**23 7.3%**	**100**	**27 8.5%**	**100**	**7 2.2%**	**100**	**47 15%**	**100**	**316 100%**

*S/C – Starcomms, *V/F – Visafone.

Source: Field Survey, 2011

Table 5.31 shows the distribution of respondents based on the Global System of Mobile Telecommunication (GSM) services they use. About half of the respondents (49 %) use Glo mobile network for making calls while 18 per cent use MTN service, the least susbcribed is Visafone by some 2.2 per cent. 15 per cent do not use/have mobile phones. Kakangi and Giwa wards have the highest number of respondents without mobile phones even though Giwa has six telecommunication masts. The least are Shika and Kadage wards; each of them has only two respondents without mobile phone.

Table 5.32: Distribution of respondents according to type of GSM calls

Ward	Business Calls	%	Greeting Friends	%	Greeting Relatives	%	No Any	%	Total
Giwa	37	28.9	12	17.4	13	18.0	7	14.9	69
Yakawada	13	10.2	9	13.0	5	7.0	3	6.4	30
Gangara	7	5.5	4	5.8	19	26.3	3	6.4	33
Dan Mahawayi	2	1.6	5	7.2	4	5.6	5	10.6	16
Kadage	4	3.1	3	4.3	-	-	2	4.2	9
Shika	22	17.2	20	29.0	19	26.3	2	4.2	63
Kidan Dan	13	10.2	2	3.0	5	7.0	5	10.6	25
Galadimawa	9	7.0	6	8.7	1	1.4	4	8.5	20
Idasu	12	9.3	1	1.4	4	5.6	6	12.8	23
Kakangi	3	2.3	5	7.2	1	1.4	7	14.9	16
Fan Hauya	6	4.7	2	3.0	1	1.4	3	6.4	12
Total	**128 40.5%**	**100**	**69 21.8%**	**100**	**72 22.8%**	**100**	**47 14.9%**	**100**	**316 100%**

Table 5.32 shows the distribution of respondents based on type of GSM calls they make. For example, 40.5 percent respondents make business calls, 22.8 percent make calls just to greet relative while 21.8 per cent make calls to greet friends. Shika and Giwa wards have the highest number of respondents that make business calls while the least is Danmahawayi ward where only1.6 per cent make such calls. Shika ward alone accounted for 29.0 per cent of the respondents that make calls to greet friends.

Fig. 5.7 presents the spatial distribution of telecommunication facilities in the study area. There is high concentration of telecommunication facilities in Giwa and Shika being the two major growth centres in the study area. A few of the facilities are also found in Idasu, Kadage and Fan Hauya wards. However, Kidandan, Galadimawa, Yakawada, Gangara, Kakangi and DanMahawayi wards do not have any of such facilities, this can be attributed to some reasons such as lack of threshold population required to benefit from such service and/or politics.

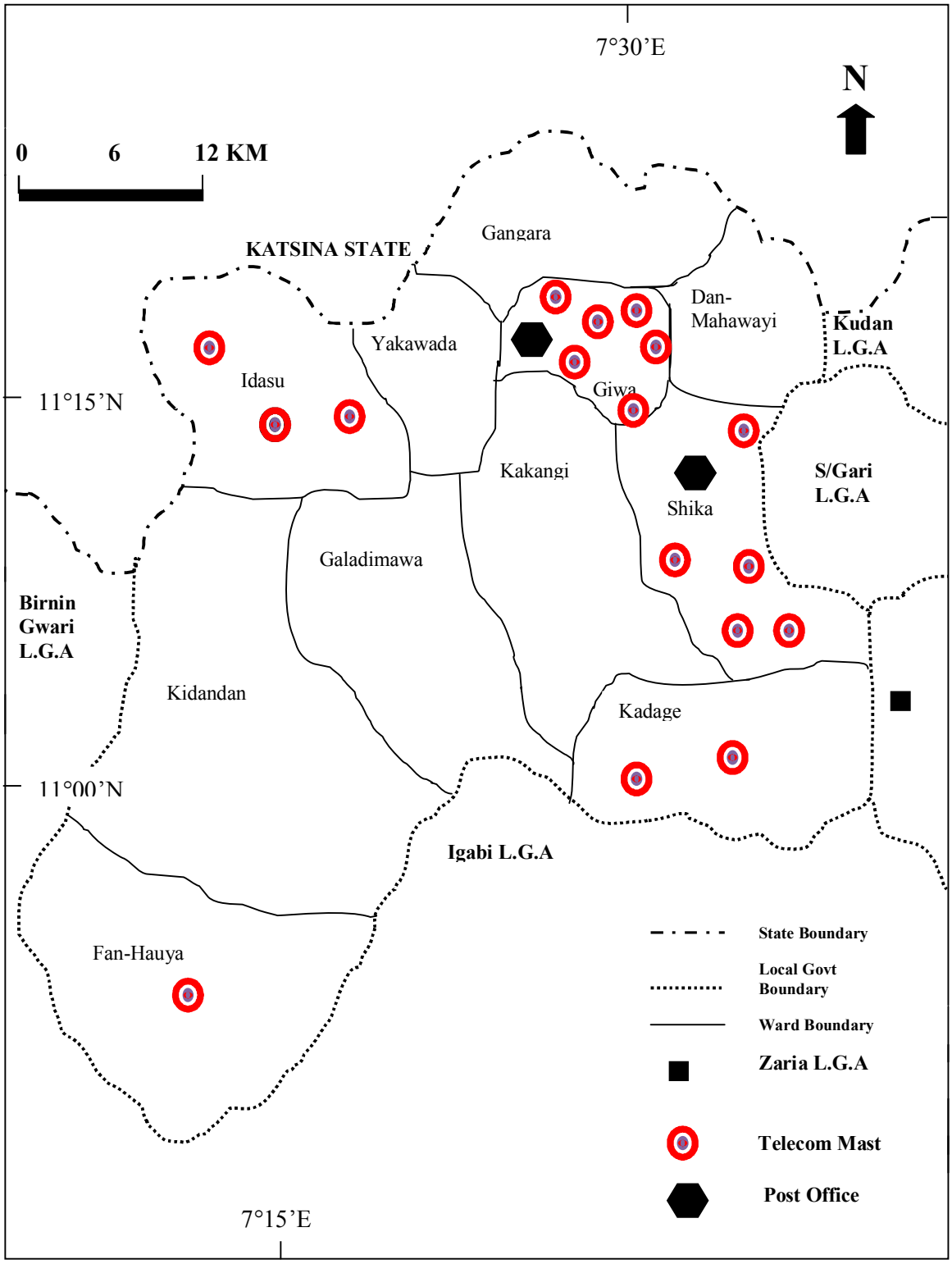


Fig. 5.10: Distribution of telecommunication facilities by ward in Giwa L.G.A

Table 5.33: The impact of GSM on social development

Ward	*A	%	*B	%	*C	%	*D	%	*E	%	None	%	Total
Giwa	10	15.9	14	26.4	9	17.0	17	32.7	12	25.0	7	14.9	69
Yakawada	7	11.1	11	20.8	7	13.2	2	3.8	-	-	3	6.4	30
Gangara	9	14.3	7	13.2	2	3.8	5	9.6	7	14.6	3	6.4	33
Dan Mahawayi	5	8.0	2	3.8	-	-	1	2.0	3	6.3	5	10.6	16
Kadage	-	-	3	5.7	1	1.9	2	3.8	1	2.1	2	4.3	9
Shika	17	27.0	5	9.4	16	30.2	9	17.3	14	29.0	2	4.3	63
Kidan Dan	4	6.3	1	1.9	7	13.2	5	9.6	3	6.3	5	10.6	25
Galadimawa	-	-	6	11.3	3	5.7	1	2.0	6	12.5	4	8.5	20
Idasu	5	8.0	-	-	7	13.2	5	9.6	-	-	6	12.8	23
Kakangi	3	4.8	4	7.5	-	-	-	-	2	4.2	7	14.9	16
Fan Hauya	3	4.8	-	-	1	1.9	5	9.6	-	-	3	6.4	12
Total	**63 20%**	**100**	**53 17%**	**100**	**53 17%**	**100**	**52 16%**	**100**	**48 15%**	**100**	**47 15%**	**100**	**316 100%**

*A – It facilitated more contacts with business people, *B – It has reduced price dispersion,
*C – It provided employment opportunities, *D – It has reduced information gaps,
*E – It served as a means for transferring resources to family back home.

Source: Field Survey, 2011.

Table 5.33 presents the different views of the respondents on the impact of GSM on social development. Some 20.0 per cent of respondents are of the the view that GSM has facilitated more contacts with business people. Looking at the nature of the study area, which is more of rural and the major economic activity is farming, the use of GSM has contributed a lot in reducing price differentiation according to 17 per cent of the respondents who are mostly based in Giwa ward. In Shika ward, 30.2 per cent of the respondents are of the view that GSM has provided employment opportunities.

5.8 Health Infrastructure

Health they say is wealth. The health status of a rural dweller is a proxy for measuring his/her agility and ability to partake in agriculture. Table 5.34 shows the distribution of health facilities in the study area. Giwa, Yakawada and Shika wards have one general hospital each. In terms of primary health care centre, there are a total of 44 centres in which Giwa ward alone has six followed by Kidandan and Kadage each with five centres. There are 122 patent medicine stores, with 14 in Shika ward; the least (5) are in Danmahawayi.

Table 5.34: Distribution of Health Facilities by Ward in Giwa L.G.A

	Health Infrastructure			
Ward	**General Hospital**	**Primary Health Care Centre**	**Patent Medicine Store**	**Total Number of Infrastructure**
Giwa	1	6	18	25
Yakawada	1	4	11	16
Gangara	-	4	8	12
Dan Mahawayi	-	3	5	8
Kadage	-	5	10	15
Shika	1	4	14	19
Kidan Dan	-	5	17	22
Galadimawa	-	3	12	15
Idasu	-	3	12	15
Kakangi	-	3	9	12
Fan Hauya	-	4	6	10
Total	**3**	**44**	**122**	**169**

Source; Field Survey, 2011



Plate VII: A primary health care centre at Galadimawa ward.

Table 5.35: Proximity to Health Facility

Ward	Less than 1km	%	1-3km	%	More than 3km	%	Total
Giwa	24	23.8	35	30.0	10	10.2	69
Yakawada	9	8.9	14	11.9	7	7.1	30
Gangara	6	5.9	17	14.5	10	10.2	33
Dan Mahawayi	1	1.0	10	8.5	5	5.1	16
Kadage	4	4.0	4	3.4	1	1.0	9
Shika	31	30.7	19	16.2	13	13.3	63
Kidan Dan	12	11.8	5	4.3	8	8.2	25
Galadimawa	8	7.9	2	1.7	10	10.2	20
Idasu	3	3.0	3	2.6	17	17.3	23
Kakangi	-	-	7	6.0	9	9.2	16
Fan Hauya	3	3.0	1	0.9	8	8.2	12
Total	**101** **32%**	**100**	**117** **37%**	**100**	**98** **31%**	**100**	**316** **100%**

Source; Field Survey, 2011

Table 5.35 presents the distribution of respondents according to closeness to a health facility. There are 30.0 per cent respondents who live between one to three kilometers away from a health facility, 32 per cent of the respondents reside less than one kilometer while 31 per cent live more than three kilometers. Shika ward has the highest number of respondents that live less than one kilometer from a health centre followed by Giwa ward, the least is Kakangi which has none. Idasu ward has17.3 per cent of the respondents that live more than three kilometers which is the highest in this category.

Table 5.36a shows the views of respondents regarding staff condition of health facility. From the table, 62.7 per cent of the respondents agreed that medical personnel are adequate in the various health facilities. In Shika ward, 30.3 per cent of the respondents are of the view that medical personnel are adequate while in Idasu ward only 15.3 per cent responded negatively.

Table 5.36a: Responses on the availability of staff in the health care centres

Ward	**Adequate**	**%**	**Inadequate**	**%**	**Total**
Giwa	55	27.8	14	11.9	69
Yakawada	21	10.6	9	7.6	30
Gangara	18	9.1	15	12.7	33
Dan Mahawayi	4	2.0	12	10.2	16
Kadage	-	-	9	7.6	9
Shika	60	30.3	3	2.5	63
Kidan Dan	19	9.6	6	5.1	25
Galadimawa	7	3.5	13	11.0	20
Idasu	5	2.5	18	15.3	23
Kakangi	2	1.0	14	11.9	16
Fan Hauya	7	3.5	5	4.2	12
Total	**198** **62.7%**	**100**	**118** **37.3%**	**100**	**316** **100%**

Source; Field Survey, 2011

Table 5.36b presents the views of respondents on how medical personnel attend to patients. For example, 81 per cent of the respondents confirmed that attention of medical personnel to patients is good while 19 per cent disagreed. All the respondents in Yakawada ward agreed that there is good relationship between staff and patient while in Shika ward only 10 per cent said it is bad.

Table 5.36b: Responses on attention of staff to patients in the health care centres

Ward	**Good**	**%**	**Bad**	**%**	**Total**
Giwa	65	25.4	4	6.7	69
Yakawada	30	11.7	-	-	30
Gangara	31	12.1	2	3.3	33
Dan Mahawayi	7	2.7	9	15.0	16
Kadage	6	2.3	3	5.0	9
Shika	57	22.3	6	10.0	63
Kidan Dan	15	5.9	10	16.7	25
Galadimawa	18	7.0	2	3.3	20
Idasu	14	5.5	9	15.0	23
Kakangi	6	2.3	10	16.7	16
Fan Hauya	7	2.7	5	8.3	12
Total	**256 81.0%**	**100**	**60 19.0%**	**100**	**316 100%**

Source; Field Survey, 2011

Table 5.36c: Availability of drugs

Ward	Adequate	%	Inadequate	%	Total
Giwa	12	16.0	57	23.7	69
Yakawada	16	21.3	14	5.8	30
Gangara	11	14.7	22	9.1	33
Dan Mahawayi	3	4.0	13	5.4	16
Kadage	-	-	9	3.7	9
Shika	20	26.7	43	17.8	63
Kidan Dan	-	-	25	10.4	25
Galadimawa	2	2.7	18	7.5	20
Idasu	4	5.3	19	7.9	23
Kakangi	7	9.3	9	3.7	16
Fan Hauya	-	-	12	5.0	12
Total	**75** **23.7%**	**100**	**241** **76.3%**	**100**	**316** **100%**

Source; Field Survey, 2011

Table 5.36c shows the views of respondents regarding the availability of drugs in the various health care facilities. More than half of the respondents are of the view that there was inadequacy of drugs while the remaining 23.7 per cent disagreed by saying drugs was available and adequate. In Kadage, Kidandan and Fan hauya wards no respondent believed that drugs were adequate, likewise, Giwa, Gangara, Shika and Kidandan accounted for the highest number of respondents that confirmed inadequacy of drugs.

Table 5.36d presents the views of respondents regarding the availability of space for patients. As high as 67.7 per cent of the respondents are of the view that space is adequate. In Idasu and Kakangi wards no respondents confirmed the availability of space however, Shika and Yakawada wards accounted for the least number of respondents who opined that space for patients is not available.

Table 5.36d: Availability of space for patients

Ward	Adequate	%	Inadequate	%	Total
Giwa	61	28.5	8	7.8	69
Yakawada	27	12.6	3	3.0	30
Gangara	24	11.2	9	8.8	33
Dan Mahawayi	2	1.0	14	13.7	16
Kadage	5	2.3	4	4.0	9
Shika	60	28.0	3	3.0	63
Kidan Dan	17	7.9	8	7.8	25
Galadimawa	14	6.5	6	5.9	20
Idasu	-	-	23	22.5	23
Kakangi	-	-	16	15.7	16
Fan Hauya	4	1.9	8	7.8	12
Total	**214** **67.7%**	**100**	**102** **22.3%**	**100**	**316** **100%**

Source; Field Survey, 2011

Table 5.36e shows the views of respondents regarding the cleanliness of health facilities. About 57 per cent of the respondents agreed that the facilities are clean while 43 per cent disagreed. Giwa ward accounted for the highest number of respondents that confirmed the bad condition of the health facilities; on the other hand, Shika ward recorded the highest number of respondents who confirmed the good condition of the health facilities.

Table 5.36e: Responses on the level of cleanliness of the Hospital/Clinic

Ward	Good	%	Bad	%	Total
Giwa	32	17.8	37	27.2	69
Yakawada	6	3.3	24	17.6	30
Gangara	19	10.6	14	10.3	33
Dan Mahawayi	10	5.6	6	4.4	16
Kadage	7	3.9	2	1.5	9
Shika	51	28.3	12	8.8	63
Kidan Dan	10	5.6	15	11.0	25
Galadimawa	16	8.8	4	2.9	20
Idasu	14	7.8	9	6.6	23
Kakangi	11	6.1	5	3.7	16
Fan Hauya	4	2.2	8	5.9	12
Total	**180 57.0%**	**100**	**136 43.0%**	**100**	**316 100%**

Source; Field Survey, 2011

Fig. 5.8 presents a spatial view of how health care facilities are distributed in the study area. Giwa, Shika, Yakawada, Idasu, Galadimawa and Kidandan all have high concentration of health care facilities particularly patent medicine stores. There are only three general hospitals in the study area which are located in Shika, Giwa and Yakawada respectively, these hospitals are managed by the state government.

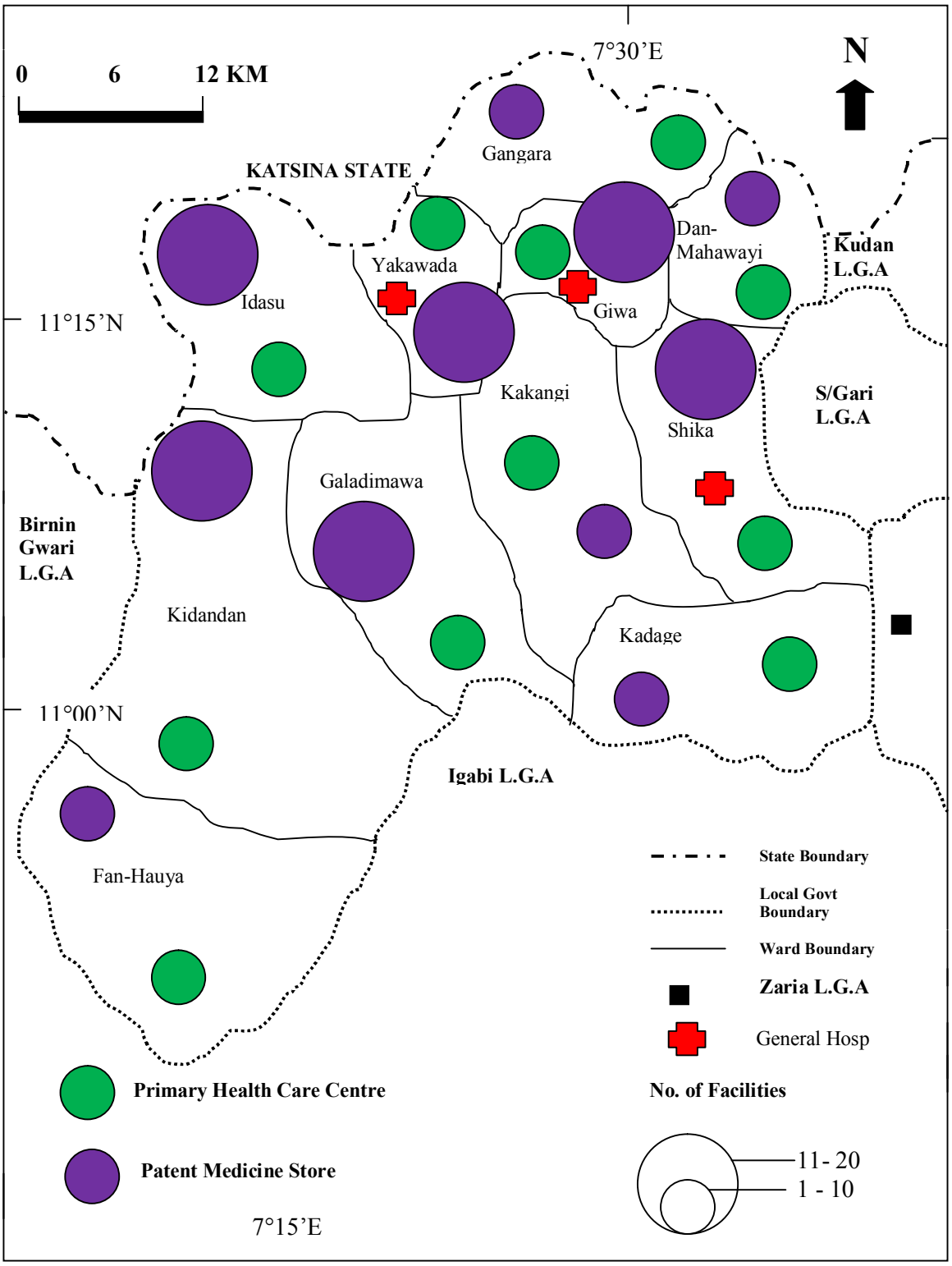


Fig. 5.8: Distribution of health facilities by ward in Giwa L.G.A

Table 5.37: The impact of health facilities on social development

Ward	*A	%	*B	%	*C	%	*D	%	Total
Giwa	37	31.1	12	13.8	15	22.3	5	11.6	69
Yakawada	10	8.4	13	15.0	4	6.0	3	7.0	30
Gangara	8	6.7	3	3.4	12	18.0	10	23.3	33
Dan Mahawayi	4	3.4	2	2.3	7	10.3	3	7.0	16
Kadage	3	2.5	1	1.1	5	7.5	-	-	9
Shika	23	19.3	30	34.5	2	3.0	8	18.6	63
Kidan Dan	7	5.9	9	10.3	3	4.5	6	14.0	25
Galadimawa	7	5.9	3	3.4	10	15.0	-	-	20
Idasu	12	10.1	4	4.6	-	-	7	16.2	23
Kakangi	3	2.5	8	9.2	5	7.5	-	-	16
Fan Hauya	5	4.2	2	2.3	4	6.0	1	2.3	12
Total	**119 38%**	**100**	**87 28%**	**100**	**67 20%**	**100**	**43 14%**	**100**	**316 100%**

*A – Provision of immunization and vaccine such as against polio and measles,
*B – Provision of anti/post natal and delivery services,
*C – Administration of drugs and injection, *D – General diagnosis.

Source: Field Survey, 2011.

Table 5.37 presents the views of respondents regarding the impact of health facilities on social development. 38.0 percent of the respondents reported that one of the most important contribution of health facilities to social development is the provision of immunization and vaccine while 28 per cent opined that the provision of anti/post natal as well as delivery services are more important. Administration of drugs accounted for 20 per cent of the respondents; the least is general diagnosis which was attended to by only 14 per cent of the respondents. Giwa ward has the highest number of respondents who believed that health facilities impact on social development through the provision of immunization and vaccine, while Gangara ward has the highest number of respondents that considered general diagnosis as an important tool for social development.

5.9 Recreation Infrastructure

Recreational activities are always considered to be ways of refreshing the mind and body after work, especially by engaging in enjoyable activities. Rural dwellers just like their urban counterpart engage themselves in recreational activities such as playing games and watching football matches on TV. Table 5.38 presents the distribution of recreational facilities in the study area in which there are a total of 109 sport viewing centres, 28 TV viewing centres, 129 playing grounds, and six community halls. The table shows that Kidandan ward has the highest number of sport viewing centres followed by Giwa ward. Shika ward has the highest number of playing grounds followed by Kadage ward.

Table 5.38: Distribution of Recreational Facilities by Ward in Giwa L.G.A

	Recreation Infrastructure				
Ward	**Sport Viewing Centre**	**Tv Viewing Centre**	**Playing Ground**	**Community Hall**	**Total Number of Infrastructure**
Giwa	16	2	14	2	34
Yakawada	11	2	10	1	24
Gangara	7	2	10	-	19
Dan Mahawayi	5	1	7	1	14
Kadage	5	3	15	-	23
Shika	14	2	19	1	36
Kidan Dan	18	4	10	-	32
Galadimawa	7	2	8	-	17
Idasu	10	3	14	-	27
Kakangi	6	1	7	1	15
Fan Hauya	10	6	15	-	31
Total	**109**	**28**	**129**	**6**	**272**

Source; Field Survey, 2011

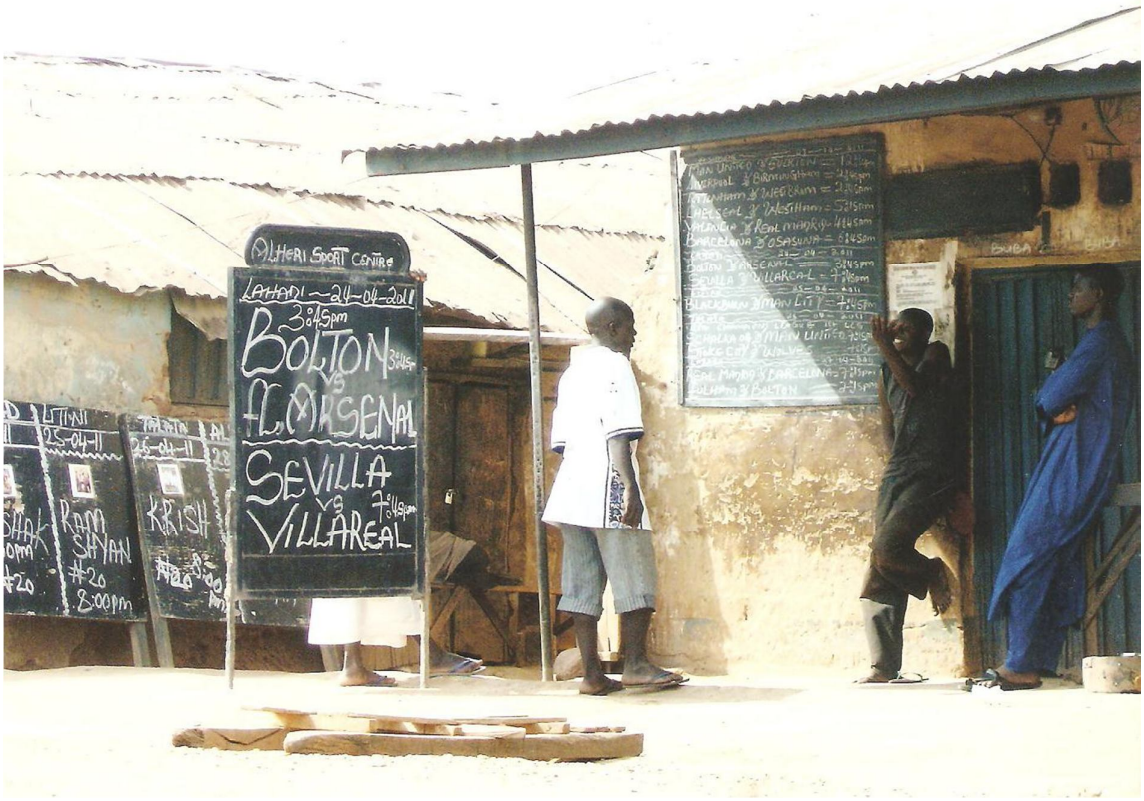


Plate VIII: TV viewing centre at Shika ward (satellite dish and television are used to view wrestling, English and European football league matches)

Table 5.39: Patronage of recreational facilities

Ward	Yes	%	No	%	Total
Giwa	43	19.5	26	27.0	69
Yakawada	19	8.6	11	11.5	30
Gangara	17	7.7	16	16.7	33
Dan Mahawayi	6	2.7	10	10.4	16
Kadage	6	2.7	3	3.1	9
Shika	51	23.2	12	12.5	63
Kidan Dan	20	9.1	5	5.2	25
Galadimawa	17	7.7	3	3.1	20
Idasu	20	9.1	3	3.1	23
Kakangi	12	5.5	4	4.2	16
Fan Hauya	9	4.1	3	3.1	12
Total	**220** **70%**	**100**	**96** **30%**	**100**	**316** **100%**

Source: Field Survey, 2011

Table 5.39 shows the distribution of respondents according to their patronage of recreational facilities. As high as 70 per cent of the respondents do patronize recreational facilities. Shika ward has the highest number of respondents that patronize the facilities followed by Giwa. On the other hand, 27 per cent of the respondents in Giwa ward do not patronize the facilities; It is followed by Gangara ward with 16.7 per cent. Kadage and DanMahawayi wards have the least number of respondents who patronize recreational facilities by having 2.7 per cent of respondents each.

Fig.5.9 shows the distribution pattern of these facilities. Recreational facilities are not uniformly distributed in the study area It is highest in Giwa, Yakawada and Shika while Gangara, Danmahawayi and Galadimawa have the lowest facilities and this can be linked to the fact that areas of high concentration are more urban in nature and urban settlers are fond of recreation.

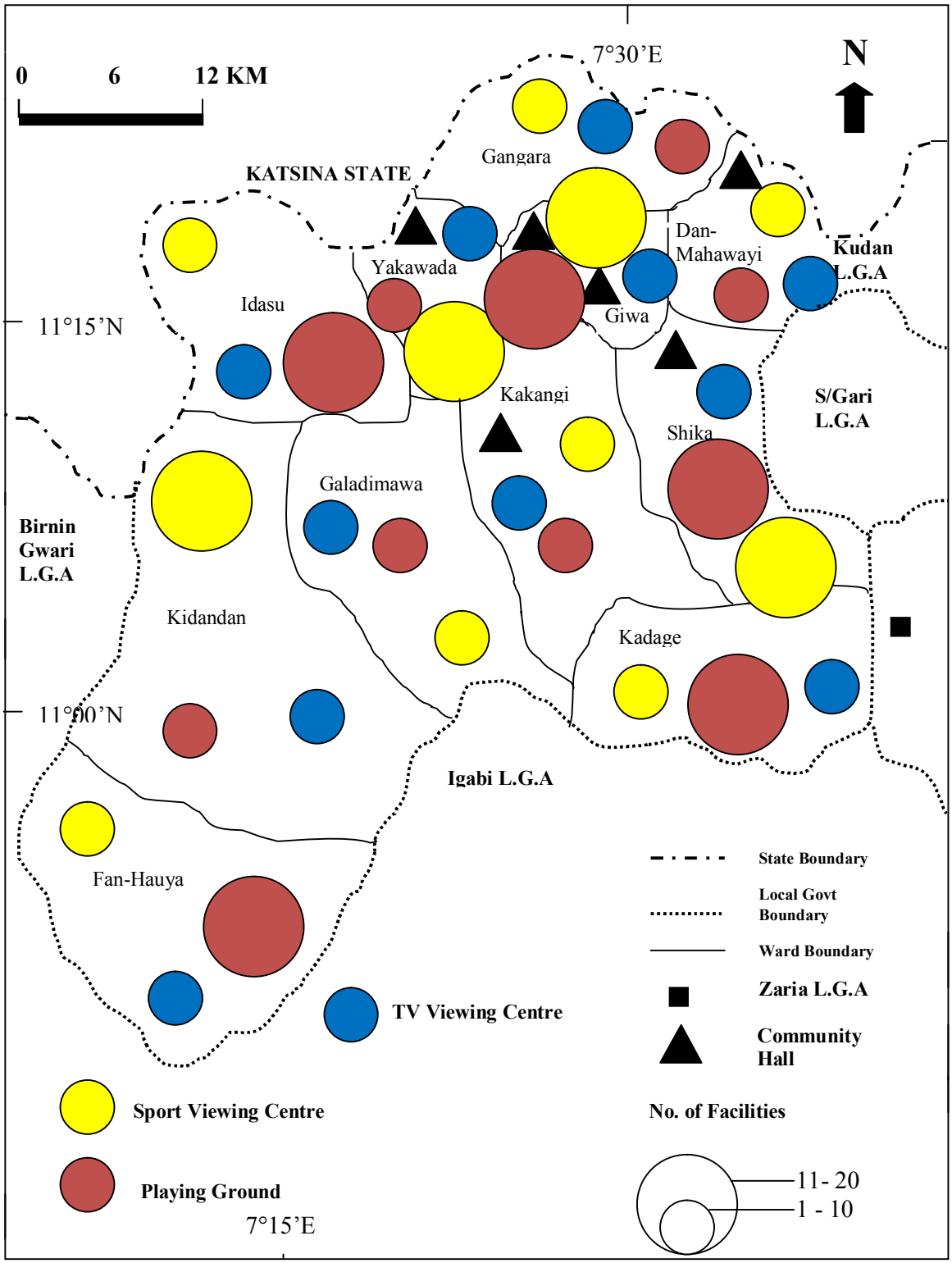


Fig. 5.9: Distribution of recreational facililties by ward in Giwa L.G.A

Table 5.40: The impact of recreational facilities on Social Development

Ward	*A	%	*B	%	*C	%	*D	%	*E	%	*F	%	Total
Giwa	17	23.0	7	28.0	-	-	11	18.0	8	22.2	26	27.0	69
Yakawada	12	16.2	2	8.0	3	13.0	2	3.2	-	-	11	11.5	30
Gangara	5	6.8	3	12.0	2	8.6	6	9.6	1	2.8	16	16.8	33
Dan Mahawayi	2	2.6	1	4.0	2	8.6	-	-	1	2.8	10	10.4	16
Kadage	2	2.6	3	12.0	1	4.3	-	-	-	-	3	3.1	9
Shika	10	13.5	2	8.0	2	8.6	25	40.3	12	33.3	12	12.5	63
Kidan Dan	7	9.5	2	8.0	5	22.0	3	4.8	3	8.3	5	5.2	25
Galadimawa	4	5.4	-	-	1	4.3	7	11.3	5	13.9	3	3.1	20
Idasu	9	12.2	-	-	5	22.0	3	4.8	3	8.3	3	3.1	23
Kakangi	5	6.8	3	12.0	-	-	2	3.2	2	5.6	4	4.2	16
Fan Hauya	1	1.4	2	8.0	2	8.6	3	4.8	1	2.8	3	3.1	12
Total	**74 24%**	**100**	**25 8%**	**100**	**23 7%**	**100**	**62 20%**	**100**	**36 11%**	**100**	**96 30%**	**100**	**316 100%**

*A – increases social contact, *B – gives opportunity for making new friends,
*C – ability to work as a team, *D – away of reducing stress, *E – helps in keeping one up date, *F – none.
Source: Field Survey, 2011

Table 5.40 shows the views of respondents regarding the impact of recreational facilities on social development in the study area; Where 24 per cent of the respondents are of the view that recreational activities have increased social contact while 20 per cent viewed it as a way of reducing stress. The least is 7 per cent which represents respondents that believed recreational facilities have given them the ability to work as a team.

Giwa ward has the highest number of respondents, who confirmed that recreational facilities have increased social contact followed by Yakawada ward. Danmahawayi ward recorded the least number of respondents who viewed recreational facilities as opportunity for making new friends while Galadimawa and Idasu wards have no respondents at all. Respondents who believed that recreational facilities help in keeping one up-to-date accounted for 33.3 per cent in Shika ward and 22.2 in Giwa ward respectively.

5.10 The Spatial Manifestation of Social Development in the Study Area

The result of the analysis of the distribution of rural infrastructural facilities shows that disparity exists among the wards. Table 5.41 shows that the leading wards are Giwa, Shika, Kidandan, Idasu and Kadage while the least developed in terms of availability of rural infrastructure are Galadimawa and Dan Mahawayi wards. However, Giwa and Shika wards being the two major growth centres have the highest population as well as the highest number of infrastructure which also reflects on their scores of 216 and 185 on social development respectively, but have Location Quotient (LQ) of less than one which means that the proportion of infrastructure in the these wards is still less than what is expected. This can be attributed to the large population bases, which share available facilities. The implication is that more facilities are needed to satisfy the large number of people in these wards.

Table 5.41 also shows that some wards, namely, Dan Mahawayi, Kadage, Kidandan, Idasu, Kakangi and Fan Hauya all have LQ above 1.0, meaning that the proportion of infrastructure in the wards is beyond what is expected. This is as a result of their small populations, which were used as the denominators. Other wards with LQ less than 1.0 have both large populations and a limited number of rural infrastructural facilities and so are equally disadvantaged. On the whole, five of the eleven wards are disadvantaged in terms of population per share of facilities. However, the remaining six wards have LQ up to the threshold value of 1.0 or more. The implication is that there is gross inadequacy of rural infrastructure in the study area. The few available ones are being over used and therefore have a very short life span if not well managed.

Table.5.41: Social Development indicators by Ward in Giwa L.G.A

Ward	Population Per Ward (P_i)	Infrastructure Per Ward (x_i)	Scores for Level of Social Development (LSD)	Location Quotient (LQ)
Giwa	63,014	181	216	0.63
Yakawada	29,216	103	128	0.77
Gangara	34,371	101	125	0.65
Dan Mahawayi	12,030	84	105	1.52
Kadage	6,588	118	138	3.96
Shika	54,135	166	185	0.67
Kidandan	21,768	128	151	1.29
Galadimawa	20,050	89	110	0.97
Idasu	22,914	128	154	1.23
Kakangi	13,748	101	121	1.63
FanHauya	8,593	104	125	2.67
	P = 286,427	**X = 1303**		

Source: Field Survey, 2011

The result of the regression analysis produced a simple structure that can easily be interpreted. Table 5.42 shows the regression summary of the score for level of social development (where social development scores are regarded as dependent or **y** variable) on social development indicators (independent or **x** variables). Attention is focused on the level of explanation provided by the seven independents variables as was stated in the methodology. This level of explanation is based on the coefficient of determination R^2. This

measures the degree to which social indicators (independent or **x** variables) are related to social development scores (dependent or **y** variable). The P-values in the estimate is also computed and this shows the significant factors (independent variables) in the equation.

Table 5.42: Regression of rural infrastructure on social development indicators

Dependent variable	Independent variable	Regression Coefficient	Standard error of estimate	t value	R-squared	P value
Score for level of social development (LSD)		9.3855	3.7191	2.5236	0.9986	0.0430
	x_1	-0.9925	0.6767	1.4665	0.9415	0.1194
	x_2	-2.4110	2.5017	0.9638	0.8769	0.2031
	x_3	5.3649	1.6507	3.2501	0.8642	0.0237
	x_4	1.0315	0.1134	9.0964	0.7307	0.0014
	x_5	1.6477	0.2703	6.0955	0.8184	0.0044
	x_6	1.2581	0.3185	3.9507	0.8061	0.0145
	x_7	1.5326	0.3809	4.0238	0.9436	0.0138

*Significant at 0.05 level

*Coefficient of determination $R^2 = 0.9986$

*Standard error of estimate (SEE) = 2.2460

Source: Computer Output

Table 5.42 shows that the coefficient of determination R^2 is 0.9986 at 0.05 level of significance. This connotes that 99.86% of the variation in the level of social development is explained by the seven independent or x variables. Therefore it can be inferred that there is a strong and positive relationship between rural infrastructure and social development in the study area. The result of the regression analysis rejects the null hypothesis, implying that the alternative hypothesis is accepted.

The p-value in Table 5.42 shows the significant factors in the regression equation. The significant factors are those that have an effect on the dependent or y variable. According to Issa (2005) when the p-value of a variable is too high (in general more than 0.10), the presence of that variable is considered to have no significance in the equation. In this study, the most significant independent variables arex_4 x_5, x_6 and x_7 (public utility, transport and communication, health facility and recreation) respectively where each of the variables have p-value much less than 0.10.

For example, the provision of public utility facilities in the form of electricity and water has highly contributed to the social development of the study area in fact, all the wards are connected with electricity and water is available in most of the villages. Although there is a general inadequacy of road network in the study area, the merging of telecommunication alongside transport makes a substantial impact on the social development of the study area by having a p-value of 0.0044 which is the most significant independent variable in the equation.

The number of recreational facilities per 1,000 population is represented by x_7 and has a p-value of 0.0138 this also contributes significantly to social development in the study area. On the other hand, the two least significant independent variables are the number of schools per 1,000 population and number of commercial facilities per 20,000 population in 2010. They have p-values of 0.1194 and 0.2031 respectively. There was not a single post-secondary institution of learning in the study area, but rather properties of ABU Zaria such as National Animal Production Research institute (NAPRI) which is an institution located at Shika. The available primary and secondary schools are very few when compared to the populations of the study area. Commercial facilities which include banks and markets contribute less to the development of the study area; this may be due to the number of the facilities available. For example, there exists only two banks in the study area and all are located in the local government headquarters which is in Giwa ward. Most of the markets in

the study area are periodic in nature meaning that they do not operate on daily basis; this reduces the number of business contact to a few hours per week. In all, the analysis of the impact of rural infrastructure on social development in Giwa local government of Kaduna state shows that all the seven independent variables are important, at of varying degrees, because they provide explanation on the impact of rural infrastructure on social development in the study area.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Summary

This study tries to assess the impact of rural infrastructure on social development in Giwa local government area of Kaduna state. This was done by assessing the available rural infrastructural facilities provided in all the eleven wards of the local government. The categories of rural infrastructure considered in the study are education, commercial, public utility, administration, transport and communication, health and recreation. The result of this analysis shows that there is uneven distribution of rural infrastructure in the study area; the findings show that there are considerable numbers of rural infrastructure in all the wards, although there are variation and differences in their number. For example, there is an over-concentration of these facilities in the two major towns of Giwa and Shika while Kakangi, Fan Hauya, Dan Mahawayi and Kadage wards that are predominantly rural in nature are neglected.

Population size is an important factor in rural development, when government provides social amenities; communities with large populations are usually favoured because it is more economical and viable to establish them in populous communities with large demands for goods and services. More importantly, the emergence or establishment of a service in a locality depends on whether the locality can produce the population threshold for the service. This threshold is the minimum population size required to support the existence of a service. This is further confirmed by the result of the analysis conducted using location quotients (LQ) in which wards with large populations but small number of infrastructure recorded LQ of less than 1.0 and so are disadvantaged. While those wards with small populations but large

number of infrastructure recorded LQ greater than 1.0, implying that the wards have achieved a comparatively more significant level of social development.

Also, the result for multiple regression shows a strong relationship between rural infrastructure and social development. This implies that, availability of rural infrastructure has impact on the level of social development of the study area. This finding is further conformed when the information obtained was tabulated, where the summary provided evidence that the available rural infrastructural facilities have greatly impacted on their social life.

6.2 Conclusion

Rural infrastructure is central to social development. Improved infrastructure not only expands opportunities for growth but also help ensure that such growth is more diffused and equitable. Many developing countries, especially in Africa, still have woefully inadequate levels of rural infrastructure, and this is a major constraint to their socio-economic development. This study has tried to assess the impact of rural infrastructure on social development, the infrastructure considered in the study are educational facilities, commercial facilities, administrative facilities, public utilities (electricity and water supply), transport and communication facilities, health facilities and recreation facilities. The nature of this study entails the use of social indicators as this would give the research a proper structure as well as sense of direction, moreover, the social indicators also served as the independent or x variables while scores for level of social development served as the dependent or y variable.

The result of the analysis conducted using Location Quotient (LQ) shows that there is uneven distribution of rural infrastructure in the study area. The findings have shown that most of the wards particularly those that are highly populated have inadequate facilities. Also, multiple regression was used to determine the relationship between rural infrastructure and social development in the study area, the result of the analysis which is expressed as the coefficient of determination R^2 shows a strong and positive relationship. Therefore, it can be

clearly stated that the provision of rural infrastructure do have great impact on the social development of the study area. On the other hand, the contribution of the individual x variables towards social development varies, the most significant variable is public utilities (electricity and water supply) followed by transport and communication facilities and then recreational facilities. The contribution of education and commercial facilities seem to be of little or no significance in the regression analysis. This in on surprising looking at the fact that there are inadequate schools in the study area, secondary schools in particular. That is why a large number of students have to travel long distance before getting to school, also the study area has a population of over 200,000 people, but have only two banks which are all located in the local government headquarters; this has definitely reduced access and patronage of the facilities thus making their impact insignificant.

Finally, this study concludes by suggesting that future researches should examine in more detail the role of rural infrastructure on social development of rural areas by laying emphasis on the quality of the infrastructure rather than quantity, so as to be able to figure out the true dimension of the development.

6.3 Recommendation

The study shows that rural infrastructural facilities are very crucial to the socio-economic development of rural areas. Access to infrastructure such as education, transport and communication, health and recreational facilities greatly improve the welfare of rural dwellers. Additionally, the supply of these basic amenities will go a long way in improving the social life of rural areas. This study reveals that attention to rural infrastructure is highly indispensable for high level of social development in the study area and Nigeria as a whole. Based on the study, it is recommended that:

I. More schools should be constructed in order to reduce the distance students have to travel to school, and more facilities should be provided for qualitative education also,

II. More banks should open branches in the study area not only in the local government headquarters but also in the predominantly rural wards as this would help farmers to have access to various services offered by the banks.

III. Rural areas are generally characterized with lack of accessibility due to bad roads conditions. The provision of motorable roads therefore will help not only farmers in transporting their produce to markets but also, students who have to travel long distance every day.

IV. Deliberate efforts should be made by government to change the policies concerning the provision of infrastructural facilities in the study area by focusing more on adequacy and even distribution. It is believed that if this is done the facilities so provided will have a greater impact on the local communities.

V. There is also a greater need for the involvement of the private sector and non-governmental organizations in the provision of such facilities. The private sector can invest substantial capital in providing for example, recreational facilities, health and communication as well as commercial infrastructure such as banks and super markets etc.

REFERENCES

Adebanjo, A.A, and Oladeji, S.I. (2006). *Health Human Capital Condition: Analysis of the Determinants in Nigeria*, in Falola T and Heaton MM (eds) Traditional and Modern Health Systems in Nigeria, Africa World Press; Trenton and Asmara: pp. 381-398.

Adefolalu, A.A (1982) "Infrastructure as Crux of Overall Development in Nigeria", Proceedings of the Silver Jubilee Conference of the NGA,University of Ibadan, April.

Adereti,F.O and Adeokun, O.A (2005) "Rural Women's Access to Infrastructural facilities in Rural Areas of Osun State, Nigeria". *Journal of Social science,* 10(3), 165-170.

Africon, (2004) "Feasibility Study for the Improvement of the Feeder Road Network on the Copperbelt: Final Report". December 2004.

Africon, (2006). Socio-Economic Stakeholder Consultation Report for the Feasibility Study for the Thaba Tseka-Taung-Mokhotlong-Sani Pass Road Project. March 2006.

Agénor, P. R., & Moreno-Dodson, B. (2006). Public Infrastructure and Growth: New Channels and Policy Implications. The World Bank Policy Research Working Paper 4064.

Ajala,O.A and Adeyinka, S.A (2005) "Accessibility to Healthcare Facilities: A Panacea for Sustainable Rural Development in Osun State Southeastern Nigeria". *Journal of Human Ecology,*18(2), 121-128.

Akinwunmi, J.A and Olawoye, J.E. (1999). "Quantitative Poverty Assessment Studies, Initiatives of the Poor and Informal Safety Nets". Osun State Final Report.

Aluko-Arowolo, S.O (2005). "Equity in Health and Federal Character Policy: A Study in Rural-Urban Dichotomy", *Babcock J. Soc. Manage. Sci.* 4(1): 38-47.

Anderson, K. and Pomfret, R. (2004) "Spatial Inequality and Development in Central Asia" (Research Paper No. 2004/36). Helsinki, Finland United Nations University World Institute for Development Economics Research.

Aschauer, D.A. (1998). "Public Capital and Economic Growth: Issues of Quantity, Finance and Efficiency". Working Paper No. 233.

Aschauer, D. A. (2000). "Do states optimise? Public capital and economic growth". *The Annals of Regional Science* (34), 343-363.

Asian Development Bank (ADB). (2000). *Rural Asia: Beyond the Green Revolution*. Manila: ADB.

Asian Development Bank (ADB). (2005). *Connecting East Asia: A New Framework for Infrastructure*. Washington DC: World Bank.

Ayoade, A.A (1982) *The State and Provision of Health Facilities in Plateau State. Research For development*, NISER, Ibadan.

Baldwin J. R., & Dixon, J. (2008). "Infrastructure Capital: What Is It? Where Is It? How Much of It Is There?" Research Paper Series (16).

Bayes, A., von Braun, J., and Akhter, R., (1999) "Village pay phones and poverty reduction: insights from a Grameen Bank initiative in Bangladesh." Accessed on 10th May, 2011, from: http://www.zef.de/fileadmin/webfiles/downloads/zef_dp/zef_dp8-99.pdf

Bristow, A. L., & Nellthorp, J. (2000). "Transport Project Appraisal in the European Union". *Journal of the World Conference on Transport Research Society* (1).9,214-220

Bryceson, D.F(2006) *Roads to Poverty Reduction? Dissecting Rural Roads' Impact on Mobility in Africa and Asia*. Oxford: Oxford University Press.

Budlender, D. and Dube, N. (1998) "Starting with what we have – Basing development activities on local realities: A critical review of recent experience". In: *The impact of infrastructure investment on poverty reduction and human development*. DBSA Discussion Paper No 4. DBSA: Midrand.

Burinskiene, M., & Rudzkiene, V. (2009). "Future Insights, Scenarios and Expert Method Application in Sustainable Territorial Planning". *Ukio ekonominis ir technologinis vystymas-Technological and Economic Development of Economy* (1).

Calderón, C., & Servén, L. (2004). "The Effects of Infrastructure Development on Growth and Income Distribution". *The World Bank Policy Research Working Paper* 3400.

Campos, J. E and Root, H.L (1996). *The Key to the Asian Miracle: Making Shared Growth Credible*. Washington DC: The Brookings Institution.

Carnoy, M. (1994). *Education and Productivity. In International encyclopedia of education*, second edition. T. Husen and T.N. Postlethwaite, eds. Oxford: Pergamon.

Chambers, R. (1983). *Rural Development: Putting the Last First*. London: Longmen.

Chino, T. (2000). *Foreword. In Transforming the Rural Asian Economy: The Unfinished Revolution* edited by Rosegrant, Mark W., and Peter B.R. Hazell. Hong Kong: Oxford University Press.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003) *Applied multiple regression/correlation analysis for the behavioral sciences, 3rd Ed*. Mahwah, NJ: Lawrence Erlbaum Associates.

Cook and Cynthia C.(2005). *Assessing the Impact of Transport and Energy Infrastructure on Poverty Reduction*. Manila: ADB.

Cox, D. and Pawar, M. (2006) *International Social Work: Issues, Strategies, and Programs*. Thousand Oaks, CA: Sage.

Creative Research Systems (CRS). "Sample Size Calculator". Accessed on 12/06/09 from http://www.Survey System.Com

Darja and Jesse. (2005). "What Happened to Village Infrastructure and Public Services During the Economic Crisis in Indonesia?" *Economics and Finance in Indonesia* 53(2):119–145.

Deaville, J., Mitchinson, K. and Wilson, L.(2002). *Think Rural Health*. Institute of Rural Health, The Countryside Agency, Rural Health Forum.

Deaville, J. (2001). *The Nature of Rural General Practice in the UK – Preliminary Research.* Institute of Rural Health and General Practitioners Committee of the BMA.

Demetriades, P. O., Mamuneas, T. P. (2000). "Intertemporal Output and Employment Effects of Public Infrastructure Capital: Evidence from 12 OECD Economies." *The Economic Journal* (110), 687-712.

DFID (2005) The Economic Impact of Telecommunications on Rural Livelihoods and Poverty Reduction: A Study of Rural Communities in India (Gujarat), Mozambique and Tanzania (Department for International Development). Accessed on 10th April, 2011. from http://www.gamos.org.uk/KaR8347Summary.pdf.

Diane,C. (1993) "Guidelines on Social Analysis for Rural Area Development Planning." A text for FAO's website on Agricultural Planning. Retrieved on 06/06/09 from http:// www.fao.org/docrep/htm

Erinosho, O.A. (2006). *Health Sociology for Universities Colleges and Health Related Institutions*, Bulwark Consult, Abuja.

Erinosho, O.A. (1980). *Health Planning in Nigeria: A Critique*, Department of Sociology, University of Ibadan, Ibadan.

Economic Modelling Specialists Inc (EMSI). (2007) Resource Library. Accessed on 09/02/2010, From http://www.economicmodeling.com/ resources/wpcontent /uploads/2007/10/emsi_understandinglq.pdf

Filani, M.O (1993). "Transport and Rural Development in Nigeria." *Journal of Transport Geography,* 1: 248-254.

Foin, D.N. (2002) "The Effects of Road Transportation Network on Agricultural Produce Marketing in Giwa Local Government Area of Kaduna State." *An Unpublished M.Sc Thesis*, Department of Geography, Ahmadu Bello University, Zaria.

Foster, V. and Yepes, T. (2005). Latin America Regional Study on Infrastructure is Cost Recovery a Feasible Objective for Water and Electricity? Working Paper No. 317.

Francks and Penelope, (1999). *Agriculture and Economic Development in East Asia*. London: ESRC Pacific Asia Programme.

Goodman, J (2005) "Linking Mobile Phone Ownership and Use to Social Capital in Rural South Africa and Tanzania," Vodafone Policy Paper Series, 2. Accessed on 5th May, 2011 fromhttp://www.vodafone.com/assets/files/en/AIMP_09032005.pdf

Gray,S. (2005) "Smith's Statistical Package (SSP),Version 2.80." Downloaded 18/5/09 from http:www.economics.pomona.edu/StatSite/framepg.html

Greaney. V, Khandker , R. and Mahmudul, A. (1999). *Bangladesh: Assessing basic learning skills. Dhaka, Bangladesh*: The University Press Limited.

Grundey, D. (2008). "Managing sustainable tourism in Lithuania: Dream or reality?" *Technological and Economic Development of Economy,* 14(2), 118-129.

Gu, W. and Macdonald, R. (2009). "The Impact of Public Infrastructure on Canadian Multifactor Productivity Estimates." *The Canadian Productivity Review. Research paper* (21).

Harris, J. (1982). *General Introduction. In Rural Development: Theories of Peasant Economy and Agrarian Change*, edited by John Harris. London: Hutchinson University Library.

Henderson, J. V., Shalizi, Z., and Venables, A. J. (2001) "Geography and development." *Journal of Economic Geography*, 1(1), 81–105.

Higgs, G. (1999). "Investigating Trends in Rural Health Outcomes: A Research Agenda." *Geoforum* 30. 203-221

Hine, J (2003) "Are Social Benefits the Missing Component of Road Appraisal?" February 2003. World Bank Technical Paper No 496.

Idachaba, F.S. (1981) *Rural Infrastructure in Nigeria: Basic Needs of the Rural Majority*, Federal Department of Rural Development Lagos, University of Ibadan Press, Ibadan.

Ikporukpo C.O. (1987). "An Analysis of the Accessibility of Public Facilities in Nigeria." *Socio-economic Planning Sciences*, 21(1): 61 – 69.

Informa Telecoms and Media (2005) "African Mobile Opportunities. Informal Telecoms and Media." Accessed on 5th May, 2006. From http://www.informatm.com/ itmgcontent/icoms/s/sectors/mobilemarkets/20017327897.html.

Issa, B. (2005) Building a Multiple Regression Model Using SigmaXL. Sixsigmafirst, Group Inc. Retrieved on 15th July,2011 form www.manorhouseassociates.com

ITU (2004) *African Telecommunications Indicators 2004*. International Telecommunications Union, Geneva, May 2004.

Jalan, J and Ravallion, M (2002). "Geographic Poverty Traps? A Micro Model of Consumption Growth in Rural China." *Journal of Applied Econometrics* 17: 329–46.

Jones, A. and Bentham, G. (1998). "Heath Service Accessibility and Deaths from Asthma in 401 Local Authority Districts in England and Wales, 1988-92." *Thorax*. 52. 218-222.

Kahn, A. (1979) *Social Policy and Social Services*. 2nd Ed. New York: Random House.

Kanbur, R., & Venables, J. (Eds.). (2005) *Spatial inequality and development*. Oxford: Oxford University Press.

Kumar, A., (2002) "Indian Villages Pedal Wireless. Wired News." Accessed on 12th April, 2011 from: http://www.wired,com/news/wireless/0,1382,56663,00.html

Li, Y., & Li, Z. (2008). "Grey Relational Analysis between Infrastructure Investment and Economical Growth in China from 1997 to 2006." Proceedings of 2008 International Conference on Construction & Real Estate Management (1) and (2), 564-567.

Lopez, A., (2000) "The South Goes Mobile. UNESCO Courier." July/August. Accessed on 5th May, 2011 from: http://www.unesco.org/courier/2000_07 /uk/connex.htm

Mabogunje, A.L.(1974) *Infrastructure in Planning Process*. Town and Country Planning Summer School. England: University of London.

Macdonald, R. (2008). "An Examination of Public Capital's Role in Production." Research Paper Economic Analysis (EA) Research Paper Series (50).

Madu,I.A.(2007) "The Underlying Factors of Rural Development in Nsukka Region of Southeastern Nigeria." *Journal of Rural and Community Development,* 2(7),110-122.

Manobi (2005) "Manobi launches in Senegal a free-access SMS market information service." Manobi Press release, 17th May 2005. Accessed on 7th May, 2010. from: http://www.manobi.net/news.php?M=5&SM=2&idnews=2005_05_17_manobi &lang=en

Martinkus, B., & Lukasevicius, K. (2008). 'Investment Environment of Lithuanian Resorts: Researching National and Local Factors in the Palanga Case." *Transformations in Business and Economics,* 7(2), 67-83.

Midgley, J. (1995). *Social Development: The Developmental Perspective in Social Welfare*. Thousand Oaks, CA: Sage.

Neville, H and Sidney, T (2001) Stratified Sampling. Retrieved on 10/02/10 from htt:/www.coventry.ac.uk/ec/-nhunt/strati.html.

National Population Commission (NPC), (2009) Population Census. Retrieved on 10/02/10 from htt:/www.population.gov.ng/index.php/Kaduna-state.

Nijkamp, P. (1986). "Infrastructure and Regional Development: A multidimensional policy analysis." *Empirical Economics* (1), 1-21.

Ogunsanya, A.A (1987). "Rural Accessibility Problem and Human Resources Development: Case Study from Nigeria." *Journal of Rural Studies*, 3(1): 31 – 42.

Olayiwola,I.M & Adeleye,O.A (2005) "Rural Infrastructural Development in Nigeria: Between 1960 and 1990 - Problems and Challenges." *Journal of Social Sciences,* 11(2), 91-96.

Okarfor, F. C. and Onokerhoraye, A. G. (1980) *Rural System Planning Geography and Planning Series*. University of Benin, Benin, Nigeria (1980).

Okafor,F.C. (1985) "Measuring Rural Development in Nigeria: The Place of Social Indicators." Social Indicators Research, 16:69-76.

Onokerhorye, A.G. (1984) *Social Services in Nigeria: An Introduction*, Kegan Publications International, London.

Patricia, D.G, and Claude, S. (2007) "Using Indicators in Planning Education for Rural people": A practical Guide: FAO-UNESCO-IIEP, IIEPs' Print Shop. Retrieved from www.unesco.org/iiep.

Pearce, T. (2001). "Women, the state and Reproductive Health Issues in Nigeria." *J. Cultural. Afr. Women. Stud*. 1(1): 1-20.

Projects Coordinating Unit- National Fadama Development Office (PCU-NFDO) (2005) "Poverty Reduction and Increased Productivity Through Empowerment, Fadama Development Project." National Fadama Development Office. Projects Coordinating Unit. Federal Ministry of Agriculture and Rural Development. Abuja.

Psacharopoulos, G. (1991). *The Economic Impact of Education: Lessons for Policymakers*. San Francisco: ICS Press.

Reutlinger C, Homfeldt H.G (2009). "Social Development." *Social Work & Society*, Vol. 6.

Seethepalli, K., Bramati, M. C., & Veredas, D. (2008). "How Relevant is Infrastructure to Growth in East Asia?" *The World Bank Policy Research* Working Paper 4597.

Snieska, V., & Draksaite, A. (2007). The Role of Knowledge Process Outsourcing in Creating National Competitiveness in Global Economy. Inzinerine Ekonomimka-Engineering Economics(3), 35-41.

Snieska, V., & Bruneckiene, J. (2009). "Measurement of Lithuanian Regions by Regional Competitiveness Index." *Inzinerine Ekonomika-Engineering Economics*(1), 45-57.

Stacy, H.W (2001) "Description and Comparison of the Methods of Cluster Sampling and Lot Quality Assurance Sampling to Assess Immunization Coverage." Department of Vaccines and Biologicals, World Health Organisation. Retrieved on 10th/02/2010 from http://www.who.int/vaccines-documents/

United Nations Development Program (UNDP). (2005). "Human Development Report 2005." New York: UNDP.

.

Waverman, L., Meschi, M., & Fuss, M. (2005) "The Impact of Telecoms on Economic Growth in Developing Countries." Vodafone Policy Paper Series, 2. Accessed on 5thMay,2011,from: http://www.vodafone.com/assets/files/en /AIMP_09032005.pdf

World Health Organisation (2006). "Country Health System Fact Sheet (Nigeria)." www.afro.who.int/home/countries/fact_sheet/nigeria.pdf.

World Bank, (2001) *Roads Economic Decision Model (RED) for Economic Evaluation of Low Volume Roads*. March 2001.

APPENDIX

DEPARTMENT OF GEOGRAPHY
AHMADU BELLO UNIVERSITY, ZARIA

A GEOGRAPHICAL ANALYSIS OF SOCIAL DEVELOPMENT IN GIWA LOCAL GOVERNMENT AREA

Sir/Madam

I'm a student of geography in Ahmadu Bello University, Zaria, conducting a research on the IMPACT OF RURAL INFRASTRUCTURE ON SOCIAL DEVELOPMENT IN GIWA LOCAL GOVERNMENT AREA.

The exercise is purely academic for the fulfilment of the conditions for the award of M.Sc degree in geography. Any information offered here would be treated as strictly confidential. I plead for your maximum cooperation in completing the questionnaire.

Please tick [√] as appropriate.

Thank you.

Signed: Salisu Abubakar

1. **Personal data of Respondents:**
   a) Age:.....
   b) Sex : Male ( ) Female ( )
   c) Name of village.....
   d) Name of ward.....
   e) Educational qualification
      i. No formal education ( ),
      ii. Some primary education( ),
      iii Full primary education ( ),
      iv. Some secondary education ( ),
      v. Full secondary education ( ),
      vi. NCE ( ),
      vii. OND ( ),
      viii. HND ( ),
      ix. Degree ( ),
      x. Any other(specify).

.....

f) Major occupation :
   i. Farming ( ),
   ii. Trading ( ),
   iii. Labourer ( ),
   iv. Contractor ( )
   v. Transport (Driver) ( ),
   vi. Transport (Vehicle owner) ( ),
   vii. Service provider ( ),
   viii. Any other(
   specify).....

g. Other sources of income.
   i. Farming ( ),
   ii. Trading ( ),
   iii. Labourer ( ),
   iv. Contractor ( )
   v. Transport (Driver) ( ),
   vi. Transport (Vehicle owner) ( ),
   vii. Service provider ( ),
   viii. Any other(specify)
   .....

2. <u>Infrastructural Facilities</u>:

EDUCATION

a. What are the available schools in this village? i. Primary school ( ), ii. Secondary school ( ), iii. Post secondary school ( ).
b. What is the distance of the school from your house?

S/No.	SCHOOL	DISTANCE (KM)
i.	Primary School	
ii.	Secondary School	
iii.	Post Secondary	

c. By what means of transport do you go to school?
   i. On foot ( ),
   ii. Bicycle ( ),
   iii. Motorcycle ( ),
   iv. Car ( ),
   v. Bus ( ),
   vi. Any other
   (specify).....

d. How much do you spend daily on transportation to and from the school?
   ₦.....

e. What are the possible benefits you have derived from the school that are now helping you in your daily activities?
   i. Ability to communicate in more than one language ( ),
   ii. Ability to do calculation with ease ( ),
   iii. Acquired technical skills/vocational training ( ),
   iv. Ability to learn new skills easily outside of school ( ),
   v. Acquired valuable agricultural skills and training ( ),
   vi. Ability to socialized more easily ( ),
   vii. Any other(
   specify).....

f. What do you think are the main problems concerning schools in this village?.....
   .....
d. suggest ways to improve them.....

COMMERCIAL

Market

a. What type of market do you have in this village?
   i. Periodic ( ),
   ii. Daily ( ),
   iii. None( )
b. Which of the following markets do you patronised?
   i. Periodic ( )
   ii. Daily ( ),
   iii Both periodic and daily ( ),
   iv. None ( ).
c. For how long have you been patronising the market?.....
d. What activity do you do in the market?.....
e. In what ways have you benefited from the market?
   i. A major source of income ( ),
   ii. Creates more social gathering/contact ( ),
   iii. Keeps oneself up to date by way of window shopping ( ),
   iv. Acts as an agent of innovation diffusion ( ),
   v. Provides sources of employment ( ),
   vi. Any other
   (specify).....

Bank

f. Which of the following banks are available in your area?
   i. Intercontinental bank ( ),
   ii. Microfinance bank ( ),
   iii. First Bank ( ),
   iv. UBA ( ),
   v. SKYE bank ( ),
   vi. Finland bank ( ),

vii. IBTC ( )
vii. Unity Bank ( )
viii. Fidelity Bank ( )
ix. None ( )

g. Which of the banks do you patronised ?.....

h. For how long have you been patronising the banks?.....

i. What is the nature of your transaction with the bank?
i. To deposit cash ( ),
ii. To withdraw cash ( ),
iii. To get loan ( ),
iv. To transfer funds ( ),
v. Any other (specify).....

j. What possible benefits have you derived from your transaction with the bank?
i. It is a source of capital ( ),
ii. It gives a sense of security ( ),
iii. Source of information ( ),
iv. It gives pride/ sense of belonging ( ),
v. Any other (specify).....

k. What are the main problems you are facing when dealing with the banks?.....
.....

l. Suggest ways to improve them: .....
.....

ADMINISTRATION

a. Which of the following Local Government office is located in this ward?
i. L. G Headquarter ( ),
ii. Area development office ( ),
iii. None ( ).

b. How does the location of the local Government office impact on your life?
i. It boosts trade ( ),
ii. Increase services ( ),
iii. Increase in social amenities ( ),
iv. Increase in new housing construction/population ( ),
v. any other (specify).....

Police Station

c. Which of the following is located in this ward?
i. Police station ( ),
ii. Police Post ( ),
iii. A vigilante office ( ),
iv. None ( ).

d. What is the impact of police station on your life and the village as a whole?
   i. Police serve as deterrent to criminals ( ),
   ii. Immediate prosecution of criminals ( ),
   iii. Bring about low crime rate ( ),
   iv. Provide a sense of security to the village( ),
   v. Any other
   (specify).....
e. What are the main problems you encounter when dealing with the police?.....
   .....
f. Suggest ways to improve them: .....

Court

g. Which of the following court is located in this ward ?
   i. Magistrate court ( ),
   ii. Shari'a court ( ),
   iii. Customary court ( ),
   iv. Court of appeal ( ),
   v. None ( ).
h. Have you ever been to any of the courts?
   i. Yes ( ),
   ii. No ( ).
i. If yes, which of the following?
   i. Magistrate court ( ),
   ii. Shari'a court ( ),
   iii. Customary court ( ),
   iv. Court of appeal ( ).
j. What issue took you to the court?.....
k. What possible benefit have you derived from the court?
   i. it increases confidence ( ),
   ii. Provides security ( ),
   iii. Fair judgement ( ),
   iv. Settle disagreements ( ),
   v. Any other
   (specify).....
l. What do you think are the main problems when dealing with the court?.....
m. Suggest ways to improve them: .....

PUBLIC UTILITY

Electricity

a. What is the source of electricity in this ward?
   i. PHCN ( ),
   ii. Solar power ( ),
   iii. Petrol / Gas generator ( ),
   iv. Any other source
   (specify).....

v. None of the above ( ).

b. Who provides public electricity in your area ?
   i. Federal government ( ),
   ii. State Government ( ),
   iii. Local Government ( ).

c. Does any of your economic activities require the use of electricity ?
   i. Yes ( ),
   ii. No ( ).

d. If yes, what is the main activity?.....

e. In the absence of PHCN what alternative source do you use in your house?
   i. leister engine ( ),
   ii. Portable generator ( ),
   iii. Portable solar device ( ),
   iv. Car battery ( )
   v. Any other source (specify).....

f. Will you be willing to pay more if electricity supply is steadied?
   i. Yes ( ),
   ii. No ( ).

g. What benefit have you derived from the use of electricity?
   i. Income generation ( ),
   ii. Boosts businesses /services ( ),
   iii. Reduced operating cost ( ),
   iv. Illuminate houses ( ),
   v. Keeps one updated in terms of current events on news media ( ),
   vi. Makes domestic work easier ( ),
   vii. Any other (specify).....

Water supply

h. What are the sources of water in this village?
   i. Well ( ),
   ii. Borehole ( ),
   iii. Tap ( )
   iv. River/Stream( ),
   iv. Any other source(specify).....

i. Who provides the following sources of water in your area?

S/No.	SOURCES	PROVIDER	PROVIDER	PROVIDER	PROVIDER
		FEDERAL GOVT	STATE GOVT	LOCAL GOVT	COMMUNITY
I	Tap water				
Ii	Borehole				

Iii	well				

j. Does any of your activities require the use of water?
   i. Yes ( ),
   ii. No ( ).

k. If yes, What is the main activity?
   i. Domestic uses ( ),
   ii. Irrigation ( ),
   iii. Laundry ( ),
   iv. Business ( ),
   v. Any other(
   specify).....

l. What is the distance of the water source to your house?.....Km.

m. What are the benefits derived from the water sources?
   i. Accessibility has reduced time and distance considerably ( ),
   ii. Children are relieved from travelling far distance to fetch water ( ),
   iii. it facilitates irrigation farming ( ),
   iv. It provides clean and drinkable water which has reduced water borne disease infections ( ),
   v. Its availability has increased its usage ( ),
   vi. Any other
   (specify).....

n. What are the main problems you are facing regarding public utility in general?.....

o. Suggest ways to improve them:.....

TRANSPORT AND COMMUNICATION

Transport

a. What means of transport do you own?
   i. Bicycle ( ),
   ii. Motor cycle ( ),
   iii. car ( ),
   iv. truck ( ),
   v. Donkey ( ),
   vi. Any other (specify).....

b. What is the distance from your house to any motorable road?.....Km

c. How much do you spend on transportation to and from market ?
   ₦.....

d. How long does it take you to reach the market in the past?.....Hrs

e. How long does it take you to reach the market now?.....Hrs

f. What are the possible benefits that you have derived from the available roads in this ward ?
   i. Reduces in travel time ( ),
   ii. Lower prices of hauling produce to the market ( ),
   iii. Provides more comfortability ( ),
   iv. increases mobility ( ),
   v. reduces vehicle operating cost ( ),
   vi. Any other
   (specify).....
g. What are the main transportation problems are you experiencing in this village?.....
h. Suggest ways to improve them:.....
   .....

Communication

i. What are the available networks in this village?
   i. MTN ( ),
   ii. GLO ( ),
   iii. Starcomms ( ),
   iv. Celtel/Zain ( ),
   v.Any other
   (specify).....
j. Which of the following network do you use?
   i. MTN ( ),
   ii. GLO ( ),
   iii. Starcomms ( ),
   iv. Celtel/Zain ( )
k. What is the condition of GSM network in this village?
   i. Very good ( ),
   ii. Good ( ),
   iii. Bad ( ),
   iv. Very bad ( ),
   vi. No network ( ).
l. What kind of calls do you often make?
   i. Business calls ( ),
   ii. Greeting friends ( ),
   iii. Greeting relatives ( ),
   iv. Any other
   (specify).....
m. How has the GSM improved on your life?
   i. It has reduced the frequency of travel ( ),
   ii. It provided more contacts with business people ( ),
   iii. It has reduced price dispersion ( ),
   iv. It reduced exploitation by middlemen ( ),
   v. It provided employment opportunities ( ),
   vi. It has reduced information gaps ( ),
   vii. Provided a means for instant communication ( ),
   viii. Strengthened access of services provided to rural people ( ),
   ix. A means for checking demand before bringing produce to the market ( ),

x. A means for transferring resources to family back home( ).

n. What are the main problems you are facing regarding GSM telecommunication?
.....
.

o. Suggest ways to improve them:.....

HEALTH

a. What type of health facilities do you have in this village?
i. General Hospital ( ),
ii. Primary health care centre ( ),
iii. Pharmacy ( ),
iv. Patent medicine store ( ),
v. None of the above ( ).

b. What is the distance from your house to the nearest health facility?.....Km

c. What can you say about the general condition of the facility?

S/No.	FACILITY	CONDITION		CONDITION	
1	Staffing	Adequate		Inadequate	
2	Attention of staff to patients	Good		Bad	
3	Availability of drugs	Adequate		Inadequate	
4	Availability of space for patients	Adequate		Inadequate	
5	Cleanliness of the hospital/clinic	Good		Bad	

d. What are the possible benefits that you have derived from the health facilities ?
i. Provision of immunization and vaccine such as against polio and measles ( ),
ii. Provision of anti/post natal and delivery services ( ),
iii. Administration of drugs and injection ( ),
iv. General diagnosis ( ),
v. Any other
(specify).....

e. What are the main problems that you encounter when trying to have access to health
facilities?.....

f. Suggest ways to improve them
:.....

RECREATION

a. What are the different kinds of recreational facilities in this village?
i. Sport viewing centres ( ),

ii. TV viewing centres ( ),
iii. Community hall ( ),
iv. Playing ground ( ),
v. Any other
(specify).....

b. what are the possible impacts of the recreational facilities on your life?
i. Increased social contact ( ),
ii. Opportunity to make new friends ( ),
iii. Ability to work as a team ( ),
iv. A way of reducing stress ( ),
v. Helps in keeping one up date ( ),
vi. A means of innovation diffusion ( ),
vii. Any other
(specify).....

c. What problems do you encounter in the viewing centres?.....

d. Suggest ways to improve them
:.....