

**DETERMINANTS OF THE STATE OF FEEDER ROADS UNDER
POVERTY ACTION FUND PROGRAMME IN UGANDA.
A CASE STUDY OF KIBAALE DISTRICT.**

BY

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DECLARATION

I declare that this Research Report is original work and has not been published and / or submitted for any other degree to any University / Institution before.



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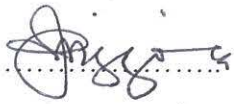
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APPROVAL

This Thesis is hereby approved and forwarded for examination with my consent and under my supervision.

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Supervisor

DEDICATION

Dedicated to my family members i.e. my wife and our children and Kibaale District Local Government whose care and support has enabled me reach this far in my life.

ACKNOWLEDGEMENTS

Research project report is an extremely important area which broadens the scholar's minds in approaching different situations. This report has taken over a year since its inception and for any project of such a long period, it is not avoidable to have many people giving a hand in its development either directly or indirectly.

Assistance has been generously given by my supervisor Dr. Alex Thomas Ijjo in reviewing the text, assessing and making corrections where necessary with all the patience tirelessly. I particularly thank him for that and the good spirit exhibited.

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LIST OF ABBREVIATIONS

ADRICS	-	Annual District Road Inventory and Conditions Surveys.
B.O.Qs	-	Bills of Quantities
CAO	-	Chief Administrative Officer
CEDAW	-	Convention of the Elimination of Discrimination Against Women
DCC	-	District Contracts Committee
DDP	-	District Development Plan
FAO	-	Food and Agriculture Organization
FDI	-	Foreign Direct Investments
GDP	-	Gross Domestic Product
HIPC	-	Heavily Indebted Poor Countries
HIV	-	Human Immunodeficiency Virus
IDA	-	International Development Association
IDPs	-	Internally Displaced Persons
IAD	-	International Fund for Agricultural Development
IMF	-	International Monetary Fund
IPFs	-	Indicative Planning Figures
KDDP	-	Kibaale District Development Programme
KDDSP	-	Kibaale District Development Support Programme
KDLG	-	Kibaale District Local Government
LGD	-	Local Government Development Programme
MDGs	-	Millennium Development Goals
MoFPED	-	Ministry of Finance Planning and Economic Development
MoGLSD	-	Ministry of Gender, Labour and Social Development
MoWHC	-	Ministry of Works, Housing and Communications
MRD	-	Ministry of Rural Development
NAADS	-	National Agricultural Advisory Services
ODA	-	Official Development Assistance
OECD	-	Organisation for Economic Cooperation and Development
PAF	-	Poverty Action Fund

PEAP	-	Poverty Eradication Action Plan
PRSP	-	Poverty Reduction Strategy Paper
RAMPS	-	Road Maintenance Planning System
RIIP	-	Rural Infrastructure Improvement Project
SSB	-	State Statistical Bureau
TRIP	-	Tertiary Rural Roads Improvement Programme
UXO	-	Unexpected Ordinance

OPERATIONAL DEFINITIONS

- **Determinants of the state of feeder roads:** In this case has been used to refer to the factors that affect the state/status of feeder roads. These factors interplay to either positively or negatively affect the state of feeder roads. The factors highlighted in this study include, Supervision, Funding, Road equipment and Drainage.
- **Supervision:** This is a technical guidance to ensure that the works are carried out to the required standards as specified in the contract document.
- **Funding:** In this case, funding means resource allocation and actual release of allocated funds to road works.
- **Road equipment:** This refers to all tools that are used to rehabilitate, maintain or open the feeder roads.
- **Drainage:** There are two types of drainage i.e. side drain and mitre Drain. These help in keeping off surface water from the carriage way and the adjoining land to suitable point of discharge.
- The study used technical scale to determine the status of feeder Road as further given below.

Very good / Excellent feeder road: This can allow a drive of over 80km per hour speed.

Good feeder roads: This state allows vehicles to run between a speed of 60-80km per hour.

Fair feeder roads allow the speed limit of 40 – 60km per hour.

Bad feeder roads allow a speed limit of between 20-40km per hour

Very Bad feeder roads can only allow a speed limit below 20km per hour.

- **Feeder roads:** These fall under the responsibility of District Local governments. These roads mainly join to the trunk roads which are national roads. In classification, the other lower classes of roads are the access roads or community roads.

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ABSTRACT

This study attempted to explain the factors that affect the state of feeder roads in Kibaale District. Specifically, the study looked at the state of feeder roads against the resources allocated. This could further be reflected in the challenges faced in supervision of the feeder roads in the District. The state of feeder roads remained very poor even when there was evidence of a cumulative shs. 1,474,061,998/= allocation in four financial years.

The study employed a cluster sampling technique due to the fact that the different groups of people had different levels of information that could explain in details the factors that affect the state of feeder roads in Kibaale District. Among the groups interviewed, there were Engineering department staff, Contractors, Accountants, to mention but a few. Data was collected by use of different methods i.e. Observation, Questionnaires, Documentary review for purposes of triangulation and reliability of findings and a total of 128 respondents were interviewed.

The study found out that some of the feeder roads were impassable, others passable but with a lot of pot-holes, though this had improved compared to the past years of 1990s. Without regard of only the funds released every year, a number of factors coupled and accounted for the poor state of feeder roads in Kibaale District. Inadequate funding, corruption, shoddy work, inadequate supervision and the weather problems to a great extent affected the feeder road network in Kibaale District and in one way or the other aggravated the problem of poor state of feeder road at different levels.

It was clearly stated that, machinery be used to maintain the feeder roads as opposed to manual labour. It was also recommended that contractors be trained before taking on any task. But above all, regular monitoring and supervision by District and Ministry authorities should take lead in this. Besides, adequate and timely release of funds and contracting nationally came out as major recommendations for this study.

CHAPTER ONE

INTRODUCTION

1.0 Background of the study

This chapter gives the background of the different classes of roads which make up a country's road net work depending on its resources and feeder roads are part of these different classes of roads. It also justifies the need for a good road net work as regards households welfare, through increased incomes as a result of reduced transport costs and enriched accessibility to markets. Further, the problem which prompted the researcher to carryout this study is also stated under here, and this concerned the determinants of the state of feeder roads given the funds released from the central government to district(s) but to no satisfactory results. It also shows how significant the study would be to policy makers, policy implementers, the road users as the direct beneficiaries, to different researchers as scholars/academicians and in fulfillment of the PAF programme objectives. Major and specific objectives are also given in details, the research questions which aimed at addressing these objectives in relation to the research problem and the scope of the study are also included.

A country's rural road network is normally made up of tracks, trails, footpaths and earth roads that link rural villages and towns to each other and, in many cases, connect to secondary roads, which allow their residents to access product and factor markets as well as social services their own communities do not provide. The tracks, trails and footpaths, normally defined as non-motorized (rural) roads., allow the movement of people and animals over typically steep terrain and are characterized by low quality standards and limited transit. A second type of roads which is of interest in this case are the motorized (rural) roads which are engineered earth roads used to connect small towns and villages by public transport or cargo trucks, which in optimal conditions allow fluid connection to secondary roads and the articulation of rural population to urban areas and access to all types of services.

The importance of this rural road network in the national road system of most developing countries is enormous but, even though it typically accounts for more than half of their transport

network, it only gets a marginal part of the national budget allocated to road construction, rehabilitation and maintenance. In the case of Uganda, in particular, its rugged topography and great ecological and climatic diversity has led policymakers to acknowledge the importance of investing in rural transport infrastructure. However, the importance assigned to these investments does not necessarily translate to an appropriate allocation of public funds. The high cost of construction and maintenance of this type of infrastructure, given the need to incorporate measures against deterioration caused by frequent changes in weather, has led to the displacement of such investment by others that are perceived as more profitable.

To face this situation, there is an urgent need to document in the best way possible the benefits that this kind of public investment brings about on the welfare of the population it serves. This is so, not only to disseminate results among policymakers but also to generate greater political support from the national population, which is typically concentrated in a few urban areas of the country.

Within this analysis and dissemination effort, the academic sector has an important pending agenda regarding the study of the impacts that rehabilitated rural roads have on household welfare; in particular, on aggregate indicators such as household consumption or income. Whilst there is no major disagreement among academicians about the need of investing in rural infrastructure in general, and road infrastructure in particular, as an effective component of rural poverty eradication efforts, justifications presented tend to be based on its impact on accessibility to public social services and markets, without establishing the effective welfare changes households might be experiencing. Although indicators of access to health and education services have an undoubtedly positive impact on household welfare, greater accessibility to product and factor markets does not necessarily entail higher levels of welfare. This is so because household income generation capacity could be threatened by increasing levels of competition in the local market. Therefore, the analysis of the impact of road rehabilitation on household income composition becomes an essential aspect in the impact assessment of this type of public intervention.

Regarding available studies on the effects of rural roads infrastructure investment, most specialized literature has just documented the different impacts that such investment could have on accessibility to product and factor markets and key public (social) services, without controlling the effects of other covariates that could be increasing or reducing the positive impacts resulting from this investment. The methodological framework used in public projects evaluation has rehabilitated considerable thanks to the introduction of techniques developed by Rosenbaum and Rubin (1983) and extended by Heckman, Ichimura and Todd (1998), which allows the construction of counterfactual scenarios, sufficiently robust to enable researchers to claim causal relations. However, this methodological alternative has not been yet incorporated to the analysis of social and economic impact deriving from rural roads construction, rehabilitation and maintenance projects. Road transport plays an overwhelming part in the transportation of passengers and cargo in Uganda as a whole.

Kibaale District has a road network of 2458.25 kilometers (kms), of which 241 kilometers are national roads, 1620 kilometers access roads and 597.25 kilometers are feeder roads the later two under the responsibility of the District. Since mid-1990 there has been a major effort to improve the network. However, the road network is still in poor shape. Important to note is that in the late 1980s and early 1990s a number of pioneering studies were conducted in rural areas of a number of Asian (Philippines and Bangladesh) and African (Zambia, Uganda, Burkina Faso, Tanzania and Ghana) countries to quantify the demand for rural transport and to establish the travel and transport characteristics of rural households (Dawson and Barwell, 1993; Ahmed 1995; IT Transport, 2000). The studies highlighted the heavy transport burden, in terms of time and effort spent on transport, faced by rural households in developing countries. The studies concluded that a considerable amount of time and effort were spent in providing for basic transport needs of households, which limited the extent to which households could take advantage of economic opportunities. The study results have been instrumental in shaping different country rural transport policies in subsequent years. It is now overwhelmingly acknowledged that there is a need to reduce the transport burden on rural households in developing countries in order to improve their overall welfare.

A good rural feeder road network may affect the income of the beneficiary population through different mechanisms. Firstly, reductions in transport costs and transaction costs, triggered by the rehabilitation of rural roads, may increase the supply of agricultural products that are brought into the market or the effective price paid to the farmer, any of which would result in increases of agricultural income. However, as income generation opportunities may also increase, the benefited economic agents could substitute agricultural self-employment income for other income sources that have greater profitability or just become available after road rehabilitation. For example, rural households could increase their non-agricultural self-employment income by producing handicrafts, or increase their participation in agricultural or non-agricultural labor markets. Besides, since rural road network improvement may allow the introduction of cheaper products into the local market, competing with local agricultural production, this substitution of income sources could be even greater. As shown by various authors, the recomposition of agricultural income resulting from a greater and better access to any infrastructure will depend on the structure of private assets like education, available farmland, access to credit, among others, as well as on the presence (or absence) of complementary public infrastructure (i.e. road network, electricity, telecommunications), which might increase (or diminish) the expected impacts. At an aggregate level, changes in labor supply and demand might also affect the local salary structure, especially if the road affects a labor market that was much less dynamic before the rehabilitation took place.

Following this introduction, this report is divided in five sections. The second section below is a brief literature review on what has so far been said about the benefits of good rural road network. It shows that most studies have focused on the access to product and factor markets as well as public services, and that available documentation regarding the impact of road infrastructure improvement on key welfare indicators, such as income and consumption, is very limited. The third section describes the source and as well as the methodology applied in this study to establish the determinants of the state of feeder roads. The fourth section presents the results of the counterfactual analysis and discussion of the same. This section also shows that improved rural roads would have an impact on the different income sources of households in a bid to alleviate poverty.

Finally, the fifth section shows the summary, conclusion and recommendations on the main findings and limitations encountered in the course of the study, and suggests some of the pending areas of research that need to be addressed in order to have a more accurate idea that road improvement can cause effective changes on rural households' welfare.

The research was carried out on the state of feeder roads under PAF programme in Uganda using Kibaale District as the case study and covered four financial years i.e. 2004/2005 to 2007/2008 as per the given objectives of this study.

1.1 Statement of the problem

Despite the funds allocated to feeder roads every financial year, Kibaale District feeder road network remained impassable in some places with very big pot holes, condemned and in some places broken bridges. During the year 2004/2005 and 2005/2006, the percentage of poor feeder roads stood at 30% and 40% respectively. However, the release of funds from the centre remained at 54.93% and 77.63% for the same period.

The bad state of the feeder roads is not only in Kibaale district but country wide as noted in the Uganda Poverty Status Report, 2005 about progress in implementing the Poverty Eradication Action Plan, where the Permanent Secretary/Secretary to the Treasury, Ministry of Finance, Planning and Economic Development stated that, "Road access has generally improved country wide especially with regard to national and district roads. However, a continuing constraint to business is the poor condition of feeder and urban roads and the pace at which these conditions are addressed" (MoFPED, 2005:57).

In line with the Uganda Poverty Status Report, 2005 referred to above, the Chief Administrative Officer and the District Chairperson had earlier on noted in their monitoring reports that, in spite of PAF funds for feeder roads released to the district by the central government every financial year, the district feeder roads were still in a bad state (Kimono .N. Simon, 2004, and Namyaka George, 2004, PAF monitoring reports).

Some of the roads remained completely impassable due to breakage of bridges like Kikwaya bridge along Kikwaya – KyanaISOKE and Ruzaire bridge along Kibaale – Paacwa Feeder road links. Others like in the Sub-counties of Mpeefu, Rugashali, Bwamiramira, Kiryanga, Nkooko to mention but a few, were full of ditches/gullies. This trend persisted to 2006/2007 reflecting 45% of impassable roads against 70.15% release of the budget. The trend worsened in 2007/2008 as it shot up to 50% with a percentage increase of 97.48% release of the total budget. It was against this background, that the researcher wanted to find out the factors that affect the state of feeder roads a case of Kibaale District Local Government.

1.2 Purpose of the study

This study would clearly identify the determinants of the status of feeder roads in Kibaale District and the whole nation at large.

Findings and recommendations drawn from the study will be beneficial to the district in the area of managing Feeder Roads and can also be applied else where in Uganda for better programme implementation. This can even cause change in the programme modalities currently in place for more positive results yielding by the entire community served.

The study would also help the policy makers in coming up with proper policies on feeder roads in an attempt to address the problem and any other future feeder road net work development and maintenance.

The implementers of this important component of feeder roads under the PAF programme could borrow a leaf from the recommendations of this study. This would help them to make effective and efficient feeder road net work that would help in service delivery to every body for their prosperity i.e.

The road users as direct beneficiaries can gain from a good road net work all the time if the recommendations drawn under the study are adopted to improve the rural road net work. This

would be in terms of accessing the different services, marketing their agricultural produce and general communication.

- PAF objectives which aim at poverty alleviation can also be achieved through improved road net work resulting from adaptation of the recommendations under this study.
- Academicians/ researchers interested in Feeder Roads management may also learn and dilate the research as this would add on the existing literature on feeder roads.

1.3 Broad objective

The study was aimed at finding out the determinants of the state of feeder roads under Poverty Action Fund (PAF) programme in Uganda and taking Kibaale District as the case study, because it was noted with concern that a lot of funds were being released from the centre to the districts purposely for rural roads network improvement, but the results obtained have not been satisfactory for a good number of years.

1.3.1 Specific objectives of the study

The objectives of the study were;

- To examine the amount of resources allocated to the feeder roads sub-sector.
- To compare the current status of the feeder roads in Kibaale to what was planned and expected and provided for through state resource allocations.
- To explore the determinants, challenges and problems faced in developing feeder roads.
- To examine policy options for enhancing the development of feeder roads.

1.4 Research Questions

The key questions of the study were:

What is the level of resources allocated to feeder roads?

What is the status of feeder roads in the district vis-à-vis what was planned and funded?

What are the challenges and problems encountered in developing the feeder roads?

What could be the policy recommendation(s) for enhancing the development of feeder roads?

1.5 Scope of the study

The determinants/causes of the state of feeder roads in the district were investigated through four financial years ranging from 2004/2005 to 2007/2008. The study encompassed the financial releases from the central government to the district vis-à-vis the budgeted amounts as regards adequacy of the funds and timeliness.

The research was a case study limited to Kibaale District Local Government. Kibaale District is one of the 9 districts which make up the Mid- Western region of Uganda. The district has a total of 18 sub-counties and 2 town councils and in each of these lower local governments, there are feeder roads which make up the Rural Road Network of the District.

As a conceptual scope, the research was limited to accessing the development and status of feeder roads. This would be further explained to any reader in terms of the determining factors that affected the state of feeder roads. This would be done with a critical comparison of the funding or the related funding of the period under study. In addition, the policy options for development of feeder roads would also be tackled under this study.

CHAPTER TWO

LITERATURE REVIEW

2.0. Introduction

This chapter contains reviewed literature related to this study, which enables us to acquire better understanding of the situation / issues of rural road network with a special focus on feeder roads. The literature has been organized in a number of themes that are part of the study problems arising from the earlier set study objectives.

Among the themes, resource allocation has been discussed in relation to a number of sub themes which detail the importance of feeder road and hence the justification for the resource allocation. The sub themes under this theme include; Overview of the benefits of feeder roads (Rural roads), Importance of Rural Roads in Agricultural Development, Road Infrastructure and Marketing in general, The need for rural roads by other Institutions and the need for rural roads in Poverty Alleviation in developing countries.

The other theme under which the related literature has been reviewed was the status of feeder roads in developing countries of which Uganda is part. This has been reviewed in relation to sub themes which among others include; Investment in Rural Infrastructure, Effects of persistent low investment and a comparison of how much should be invested in rural roads.

The theme on challenges has been reviewed under the PAF programme in Uganda, The PEAP, and Rural Roads and Millennium Development Goals. Because of these programmes being the major roots of feeder roads for which this study was based, the policy options to develop feeder roads have also been tackled under this same theme.

Under each theme, the gaps for which this study was set to fulfill was clearly highlighted with respect to feeder roads in a bid to further understand the true picture which require action for improvement and achieving the set objectives of PAF programme.

2.1.0 The PEAP

Poverty has many dimensions including low and highly variable levels of income and consumption, physical insecurity, poor health, low levels of education, disempowerment, a heavy burden of work or unemployment, and isolation (both social and geographical). Drawing on recent evidence (including household surveys and the Uganda Participatory Poverty Assessment project), the PEAP highlights the many dimensions of poverty in the Ugandan context. It recognises the importance of increasing income to poor households, and places a high priority on eradicating income poverty. It also views ignorance as a particularly constraining feature of the lives of poor people, and is concerned to improve literacy and educational achievement among the population at large. Health is another central concern for the poor, and the Government has established clear goals for improving the health of Ugandans. It is essential that poor people have an effective voice in the design and implementation of public policy. The objective of the PEAP is to marshal public effort at improving these dimensions of household well being.

Uganda's Poverty Eradication Action Plan (PEAP) is established on five major pillars namely:

Economic management, which states the need for macroeconomic stability consistent with rapid private sector led growth.

Enhancing production, competitiveness and incomes that states the need for increased private sector competitiveness, strengthened infrastructure in support of increased production of goods and services and strengthened environmental and natural resource management.

Security, Conflict resolution and disaster management which highlights the protection of persons and their property through elimination of conflicts and cattle rustling, resettlement of IDPs and strengthened disaster management.

Good Governance which stipulates the need for strengthened political governance, improved human rights and strengthened legal and justice systems, strengthened public sector management and accountability.

- *Human Development* which highlights the need for better-educated society, and healthier Ugandans.

2.1.1 PAF Programme

The International Monetary Fund (IMF) and the World Bank Group's International Development Association (IDA) agreed that Uganda had met the conditions for its completion point under the enhanced Heavily Indebted Poor Countries (HIPC) Initiative. Uganda's eligibility for debt relief under the enhanced HIPC Initiative was a recognition by the international community of the progress made in implementing economic reforms and poverty reduction. It also recognized that Uganda's poverty reduction strategy, as laid out in its Poverty Reduction Strategy Paper (PRSP), would contribute to continued economic growth and an improvement in the quality of life of the poor. The enhanced HIPC debt relief, by reducing Uganda's debt-service obligations, created room for additional public expenditures on poverty reduction. Resources made available by debt relief provided under the HIPC Initiative are channeled into the Poverty Action Fund (PAF), and allocated to key antipoverty programs, spelled out in the PRSP. The PAF has provided a transparent link between donor support, including debt relief, and the government's poverty reduction program.

The World Bank's enhanced HIPC Initiative debt relief amounts to nominal US\$629 million and is provided by covering about 54 percent of debt service falling due to IDA each year. Together with the World Bank's assistance under the original framework, the World Bank provides a total of nearly US\$1 billion in HIPC Initiative assistance to Uganda.

The IMF and the World Bank launched the HIPC Initiative in 1996 as the first comprehensive effort to eliminate unsustainable debt in the world's poorest, most heavily indebted countries. In October 1999, the international community agreed to make relief under the Initiative broader, deeper, and faster by increasing the number of eligible countries, raising the amount of debt relief each eligible country would receive, and speeding up the possibility of its delivery. But before qualifying as an eligible country for debt relief, two stages have to be followed i.e.

- . The debtor country need to demonstrate the capacity to use prudently the assistance granted by establishing a satisfactory track record, normally of three years, under IDA- and IMF-

supported programs.

2. After reaching the decision point under the Initiative, the country has to implement a full-fledged poverty reduction strategy, which has been prepared with broad participation of civil society, and an agreed set of measures aimed at enhancing economic growth. During this stage, IDA and IMF may grant interim relief, provided that the country stays on track with its IDA- and IMF-supported programs.

In the same line, PEAP (Poverty Eradication Action Plan) whose priorities PAF aims at fulfilling, was developed in the mid 1990s setting out strategies for eradicating absolute poverty by 2017, and this was after a wide consultation process which led to the first PEAP being published in 1997 (MoFPED, 2001). This PEAP has continuously been updated with the Government drawing on a series of consultations with a wide range of stakeholders, including the poor through a participatory poverty assessment to establish their priorities and address their concern.

PAF programme is a specific intervention or set of interventions within a sector or sub-sector and must be; in the PEAP, be directly poverty reducing, deliver a service to the poor and must have a well developed plan. Important to note is that, PAF also accelerates the process of decentralization as its funds are channeled directly to the local Governments as conditional grants to address the PAF key sectors i.e. Rural Feeder Roads, Agricultural extension, Primary Education, Primary Health-care, and Water and Environmental sanitation and is not a separate fund but a sub-set of the over all Government budget. And whilst other programmes within the Government Budget like NAADS, LGDP, etc. may be subject to cuts due to resource availability during budget implementation, Government commits to the funds budgeted for PAF programmes being available over the financial year (MoFPED, 2005). In its implementation, PAF programme has guidelines which the implementers have to follow strictly.

PAF is aimed at assisting people grow economically but growth alone is not enough. Public action is needed to equip people with skills and assets to escape poverty such that even if the programme stops, people may continue to live by the standards reached or higher. Just as U.S President Lyndon B. John's Great Society speech, 1964, put it that, "It is not enough to open the gates of opportunity. All citizens must have the ability to walk through those gates" (The Guide,

Issue No. 3 April 2006: 03). In other words, PAF is for all, and therefore, measures like PAF guidelines must be strengthened, transparency encouraged and the beneficiaries sensitized on their rights about PAF funds so as to be able to monitor such programmes at their local level.

Separate from the PAF guidelines by MoFPED, the Ministry of Works, Housing and Communications (MoWHC) also has its own sets of guidelines pertaining roads works and some of those are the District Administrative and operational guidelines, Contract documentation manuals, Planning manuals, implementation and monitoring manuals, which talk about, Annual District Road Inventory and conditions Surveys (ADRICS), Preparation of Quarterly Progress Reports, Functional Road classification System and Routine numbering, Annual District Road Work Plan for Routine and Periodic Maintenance, Rehabilitation and spot repairs, Contract Management and Administration, Gender guidelines, Occupational Health and workplace safety guidelines, Bills of Quantity for rehabilitation, periodic maintenance and minor works, Contract documentation and procedures for labour based routine maintenance, Technical specifications for rehabilitation, periodic maintenance and minor works, HIV/AIDS guidelines, and Environmental guidelines among other things.

These guidelines stress that, as road works are being carried out, environmental protection should be borne in mind, HIV/AIDS victims should not be avoided but rather treated equally like others, the work place safety and health issues be mainstreamed, and that Women should also play a role in road works for gender sensitivity in line with the Convention of the Elimination of all forms of Discrimination Against Women (CEDAW) and the Beijing Declaration where Uganda is signatory. On this, the Ministry of Gender, Labour and Social Development (MoGLSD) with the mandate of mainstreaming gender in all line ministries and the National Gender Policy (1997) that provides the operational frame work, has to ensure integration of gender in the development process as part of the national machinery in enforcing its policies (MoWHC, 2003 Volume 5 Annual C).

2.1.2 A brief review on the benefits of rural roads

Even though the focus of infrastructure investment in developing countries has shifted away from large-scale projects (highways, railways and big irrigation schemes) to smaller scale but more locally important investments, such as rural roads or micro hydroelectric power plants, impact assessments of such investments on poverty or the living standards of the local population are still scarce.

The relation between poverty reduction and rural infrastructure provision has been discussed from a macro perspective by various authors. Ahmed and Donovan (1992), World Bank (1994), Lipton and Ravallion (1995), Booth, Hanmer and Lovell (2000), among others, point out the existence of strong linkages between rural infrastructure investment, agricultural growth and poverty reduction. These studies draw evidence from South East Asian countries like Indonesia or Malaysia, where a massive increase of rural infrastructure was followed by a long period of economic growth and a dramatic reduction in rural poverty. Although the causal connection is not clearly established, they suggest this would have happened as a result of the impact of infrastructure investment on the rise of agricultural productivity and the creation of new job opportunities.

More recently, authors like Jalan and Ravallion (2002) have highlighted the importance of both the existence of rural infrastructure facilities as well as the complementarities among them, as an essential requirement for rural income growth and poverty reduction. These authors find that in order to overcome poverty traps it is crucial to assure not only the access to some particular key public facilities, like roads or electricity, but also the conformation of a critical mass of complementary key public infrastructure facilities.

As Gannon and Liu (1997) pointed out, the microeconomic mechanisms by which road infrastructure investment generates positive impacts on economic growth and poverty reduction have been recognized by specialized literature. According to these authors, rural infrastructure investment allows, on the one hand, the reduction in production costs and transaction costs, fostering trade and making possible division of labor and specialization, key elements for

sustainable economic growth. Furthering that kind of argument, Blocka and Webb (2001), find that higher road density promotes specialization, enabling farmers to develop a more intensive agriculture based on modern inputs. On the other hand, another mechanism pointed out by Gannon and Liu (1997) is related to how rural infrastructure improvement fosters increases on the profitability of public and private assets belonging to households that have access to such infrastructure.

Although literature identifies properly many of the areas where the positive impacts of such investments are foreseen (i.e. agricultural production, employment, income, health or education), there are only few studies that have made progress in establishing a clear causal link between infrastructure provision and any welfare indicator. Most studies have limited their attention to document in more or less detail the role of accessibility to infrastructure facilities by the rural poor, in terms of reductions of time and costs involved in accessing product and factor markets or accessing social services, like health or education.

In the last few years, the research areas privileged by studies oriented to document, in an empirical way, the positive impact of larger and better access to rural road infrastructure have been related to two broad areas. On the economic side, privileged studies have been those quantifying time savings, transport costs reductions and transaction costs reductions associated to the articulation of rural households to product and factor markets, as well as those focusing on the impact that larger provision of this kind of infrastructure generates on rural job opportunities. On the social side, privileged studies have been those documenting the greater access to basic services - like health and education - that follow the construction or rehabilitation and maintenance of rural roads.

Among the studies that focus their attention on quantifying time savings and the reduction of transport costs we can mention contributions like that of Lucas, Davis and Rikard (1996), who assess the impacts of a rural roads reconstruction and rehabilitation program in Tanzania, after seven years, by documenting traffic increases, passenger and freight cost reductions and time savings to access markets. It could also be mentioned here Guimaraes and Uhl (1997) who assess how transport mode, quality of the road and distance to markets affect agricultural production

costs in the federal state of Pará, Brazil; or Liu (2000) who carries out a study of production and transport costs comparing villages with permanent access to roads to those with only seasonal access, in the state of Andhra Pradesh, in India.

In addition, among studies interested on assessing relations between access to different types of road infrastructure and transaction costs, Escobal (2000) compares, for the case of Peru, two geographic areas with different degree in accessibility, one connected to markets via motorized rural roads while the other is connected to the same markets via non-motorized rural roads. Escobal measures the transaction costs associated with marketing the main product of these areas, potato, and finds that such costs are substantially higher at areas connected to markets by non-motorized roads than those observed at areas connected by motorized roads.

Different studies have documented the importance of road infrastructure in expanding rural labor markets. Smith, Gordon, Meadows and Zwick (2001) show that, for the case of Uganda, the rehabilitation of road infrastructure fostered the expansion of job opportunities in the service sector. Lanjouw, Quizon and Sparrow (2001) also find rehabilitated non-agricultural job opportunities in Tanzania due to rehabilitated road infrastructure. However, Barret (2001) acknowledges that this kind of studies has not been able to estimate accurately the profitability of rehabilitated access to labor markets provided by such infrastructure improvement, in terms of new job opportunities as well as better job opportunities than those existing before the intervention.

In addition, several studies such as those by Corral and Reardon (2001) in Nicaragua, de Janvry and Sadoulet (2001) in México, and Escobal (2001) in Peru, have found significant relations between different road indicators and non-agricultural rural job opportunities both in self-employment and waged activities. These studies have shown that road access might even compensate the absence of other public and private assets.

What is happening with households in terms of wealth and welfare? The impacts of rehabilitated road infrastructure on accessibility to product markets and new and better job opportunities,

referred above, should - though might not - be generating wealth or welfare gains. However, there is not much work done in this research area. We can only mention the work of Jacoby (2000), who shows, using data from Nepal, that there is a negative relation between farmland value and its distance to agricultural markets. As indicated by this author, if farmland behaves like any asset, its price would equal the net present value of the benefits its cultivation generates, and therefore this relation - between farmland value and distance to agricultural markets - is an indicator of the capital gains generated by the improvement of road infrastructure. In addition, Jacoby (2000) identifies a significant but weak relation between agricultural wages and distance to the market. This suggests that benefits of better articulation to labor markets are the result of changes in time allocation between self-employment and waged activities, rather than the result of increased wages due to rehabilitated rural roads.

Amongst the studies that have privileged the analysis of social impacts of rural road infrastructure, we can mention those by Windle and Cramb (1996) and Porter (2002). Windle and Cramb (1996) compare three areas in Malaysia with different degree of accessibility and verify the positive impacts of rehabilitated road infrastructure in maternal healthcare, nutrition and access to school; while Porter (2002) focuses on the impacts of road access over rural poor population of Sub-Saharan Africa, showing the significant negative impacts of road deterioration on accessing health services. A common criticism of most of the studies referred above is related to their methodological designs, which prevents them from assessing clear causal links between road construction, rehabilitation and maintenance and the different impact indicators.

Frequently, these studies just show associations between a greater provision of transport infrastructure and reduced transport costs, increased access to markets and public services, or even greater economic growth and lower poverty rates, without controlling properly for other covariates that might be having an effect on the linkages under analysis. In some other cases, control variables are incorporated, but this is not done systematically enough to allow the construction of a counterfactual scenario, required by any serious causal study seeking to make such causal claims.

Only a few studies have moved forward in the direction of constructing counterfactual scenarios. Ahmed and Hossain (1990) carried out the first study that sought to systematically control for the most important covariates in order to estimate the impact of rehabilitated rural infrastructure. With a sample of 129 villages in Bangladesh, this study finds that villages with better road access have greater agricultural output, greater total incomes and better indicators of access to health services, in particular in the case of women. This study also finds evidence that suggests that roads would have increased wage income opportunities, especially for those who have no farmland.

The study by Binswanger, Khandker and Rosenzweig (1993) is also pioneering in this effort of constructing counterfactual scenarios to study the welfare impact of rural infrastructure. Using time series information in a random sample of 85 districts from 13 States in India, it shows that road infrastructure investment fostered agricultural output growth, higher usage of fertilizers and a larger credit supply. This study presents a conceptual framework that is helpful to overcome simultaneity problems created when assessing the causal relations between infrastructure investment and other variables of interest. To avoid the correlation of nonobservable variables with each district's infrastructure endowment, which would bias impact estimates, Binswanger, Khandker and Rosenzweig (1993) implicitly construct a counterfactual scenario based on a random selection of districts.

Levy (1996) carried out another study in the same line, assessing the socioeconomic impacts of road rehabilitation based on a sample of four rural roads in Marruecos, comparing pre-existing and post-rehabilitation conditions. To control for context covariates, different to rehabilitation itself, which could have affected the outcome, Levy (1996) compares the data on the performance of these four rehabilitated rural roads with that of two non-rehabilitated roads. From this "before-after" and "with-without" comparison, the study finds that the impacts from rural road rehabilitation were much more important than the expected reduction in transport costs, showing significant increases in agricultural output as well as important changes in the crops portfolio and usage of inputs and technologies. In addition, the study identifies very clear causal linkages between rehabilitated road infrastructure and access to education, particularly for girls, as well as a substantial increase in the use of public health services. Although this is a case study, which

does not pretend to be representative of a wider area, in methodological terms it does manage construct sufficiently solid counterfactual scenarios to move forward in establishing causal relations between rural roads investment and key variables associated with rural household's welfare.

In the same line, research work done by Bakht (2000) for Bangladesh, comparing rehabilitated roads to "controls", finds considerable expansion in passenger and freight traffic and reductions in transport costs. However, Bakht falls short of assessing impacts on welfare of beneficiary households, as he does not construct a counterfactual scenario in which households located in non-rehabilitated roads possess characteristics comparable to those of households located near rehabilitated roads.

Finally, Cuánto (2000) shows, a set of indicators of the benefits that the national program of road rehabilitation and maintenance would have had on beneficiary rural households after its three-year implementation (1996-1999) for the case of Peru. In doing so, the study by Cuánto (2000) compares beneficiary households and towns - located near roads rehabilitated by a public program - with households and towns located in comparable rural roads, which had not been served by the program, and finds important reductions in passenger and freight transport costs as well as increases in access to key social services. However, due to not having appropriate controls as much as problems of the data, the study does not make the most of the existence of potential controls to assess rigorously the impact of road rehabilitation on beneficiary households welfare. This area should be focused on for future study by other scholars.

2.1.3 Importance of rural road improvement in Agricultural Development

The importance of good infrastructure for agricultural development is widely recognized especially in developing countries. In one of the technical background documents for the World Food Summit, held over 10 years ago, it is concluded that *"Roads, electricity supplies, telecommunications, and other infrastructure services are limited in all rural areas, although they are of key importance to stimulate agricultural investment and growth"* (Food and Agriculture Organization of the United Nations (FAO) 1996, chapter 10, p.15). The document

further argues that “*Better communications are a key requirement. They reduce transportation cost, increase competition, reduce marketing margins, and in this way can directly improve farm incomes and private investment opportunities*”. These conclusions are supported by several studies of infrastructure conducted in developing countries, Antle (1984), Binswanger, Khandker, and Rosenzweig (1993), Fan, Hazell, and Thorat (2000), Mundlak, Larson, and Butzer (2002), Fan, Zhang, and Zhang (2002), Fan and Zhang (2004). These studies demonstrate that investment in infrastructure is essential to stimulate the rural non-farm economy and vitalize rural towns, to increase farmers’ access to input and output markets, to increase consumer demand in rural areas, and to facilitate the integration of less-favored rural areas into national and international economies.

Authors like Fan and Zhang, present one of the most careful econometric analyses done on the Subject of road infrastructure. According to their estimates, investments in roads significantly contribute to agricultural growth. At the same time, agricultural growth induces a much larger demand effect on roads, though the demand on roads also depends on several other factors besides agricultural growth, Fan and Zhang (2004). In the same line, also find that public investment in rural roads has a large positive impact on agricultural productivity growth in India, (Fan, Hazell, and Thorat, 2000). In addition, road investments significantly contribute to agricultural growth as well as growth in the non-farm sector and the national economy, Fan, Zhang, and Zhang (2002) and Fan and Chan-Kang (2005).

Further, Fan and Chan-Kang (2005) insists that, the quality of infrastructure is an important determinant of the effects of infrastructure on agricultural growth and poverty reduction. When measured by kilometer of new road, they found that investment in high-quality roads in China have close to 50% higher returns to total GDP than investments in low-quality roads. However, investments in low-quality roads have the largest returns in total GDP (41.5% higher) in rural areas, while the effects of high-quality roads were almost twice as high as those of low-quality roads in urban areas. In addition, they examined the effects in money metric (i.e., taking the cost of construction into account), and found high-quality roads had lower returns per yuan than low-quality roads in all areas and regions. In other words, the economic rate of return per yuan was estimated to be higher for low-quality roads than for high quality ones.

2.1.4 Roads Infrastructure and links with Agricultural Input and Output Markets

Market integration over space and time requires good road infrastructure and effective market institutions. Where spatial market integration is poor, favorable local growing conditions, improved production practices, or adoption of modern technologies that result in increasing marketable surpluses may result in drastic drops in local prices, while other areas may suffer from deficits and rapidly increasing prices if the road infrastructure is poor. Such large spatial price differences and abrupt intertemporal price changes are common in low-income countries with poor road infrastructure and/or poorly functioning markets. For example, maize prices in Ethiopia tripled from 1997-1998 to 1999-2000 followed by an 80 % drop from 1999-2000 to 2000-2001. In Malawi, the price of maize quadrupled between April 2001 and April 2002, Pinstруп-Andersen (2002).

The supply response by small farmers is also seriously affected by the state of road Infrastructure and market. Chhibber (1988) found that a one percent increase in output prices would result in a supply response of 0.3-0.5 percent in areas with poor road infrastructure and 0.7-0.9 in areas with good road infrastructure. The farmers' willingness to adopt productivity-enhancing technology depends very significantly on the general infrastructure especially roads and market situation with which they are faced.

In most low-income developing countries, market integration is limited by poor transport, storage and communication infrastructure, lack of effective competition among market agents, limited rule of law, and restricted access to commercial finance. The price transmission may be low and price changes in urban or world market are not fully transmitted to producers and traders. Worse still, without effective competition, economic agents with larger market power may exercise control over pricing strategies that result in a slow and incomplete pass-through of price increases and a fast and complete transmission of price decreases.

While privatizing agricultural marketing has benefited farmers and/or consumers in many countries, it is important to recognize the role of the state in facilitating private transactions. A

number of public interventions such as standardization, grading, enforcement of contracts and regulations to pursue effective competition are needed to make the private markets work.

2.1.5 Other Institutions Needed and Links to Road Infrastructure

Besides the facilitation of access to output and input markets, financial institutions are also needed to provide access to credit and savings for farmers. Microcredit schemes have been successful in providing access to small amounts of credit for the rural poor mostly in Asia. However, the credit market for smallholders, especially in Sub-Saharan Africa, is functioning very poorly and credit constraints are a major reason why smallholders fail to increase productivity and choose more profitable production strategies. For example, credit constrains negatively influence plot size (Hazarika and Alwang 2003), fertilizer use (Croppenstedt, Demeke, and Meschi 2003), and total productivity (Freeman, Ehui, and Jabbar 1998). But in order to create the enabling environment for a well-functioning capital market in rural areas, public investment in road infrastructure is needed. However, publicly-financed or managed financial institutions have a very poor track record. Fortunately, road infrastructure improvements tend to attract private financial institutions to rural areas as shown by some authors that, private banks are more likely to locate in areas with better road infrastructure and marketing systems, Binswanger, Khandker and Rosenzweig (1993). Improved rural road infrastructure also encourages marketing agents to extend credit to farmers at reasonable interest rates, because of lower risks.

2.1.6 Rural Road Infrastructure and Poverty Alleviation

While the previous sections discuss how road infrastructure benefits agricultural development, this section pays more attention to the distribution of the benefit and examines how rural road infrastructure affects the environment for the poor and their ability to connect to national and international economy.

First of all, the positive effects of road infrastructure investments on real incomes in both agriculture and non-agriculture sectors contribute to poverty reduction. Road infrastructure also directly contributes to poverty alleviation by providing and supporting the delivery of key

services such as access to safe water and basic sanitation, especially in the very early stage of development. The examination of such effects of road infrastructure is especially important in the context of achieving the Millennium Development Goals (MDGs) i.e. Eradication of extreme poverty and hunger, Universal primary education, Gender equality and empowering women, Reduction of child mortality, improve maternal health, Combating HIV/AIDS, malaria and other diseases, Ensuring environmental sustainability, Global partnership for development, De-mining, UXO and victim assistance. The Millennium Development Goals (MDGs) have become a central feature in international development policy. The importance of transport infrastructure in the achievement of the MDGs has been emphasised in several recently published reports (Sachs, 2005; Commission of the European Communities, 2005; World Bank, 2003). In addition, human development (e.g., education and health) rely on services that require supportive infrastructure like water and sanitation to prevent disease, electricity to serve schools and health clinics, and roads to access the facilities, Deininger and Okidi (2003), and Datt and Ravallion (1998). Thus, a lack of appropriate road infrastructure is a major bottleneck in efforts to achieve the MDGs and accelerate poverty alleviation in developing countries.

Several studies conducted consistently show the importance of road infrastructure in promoting poverty alleviation. For example, Fan, Zhang, and Zhang (2002) document the critical role of infrastructure development, particularly roads and telecommunications, in reducing rural poverty in China between 1978 and 1997. The authors also show that poverty fell because of the growth in rural non-farm employment that followed the expansion of infrastructure. Road infrastructure investments along with appropriate institutions can reduce rural poverty in a variety of ways. Micro credit schemes have been successful in generating incomes in both small-scale agriculture and, in particular, in small-scale non-agricultural rural enterprises. Similarly, the introduction of fixed and mobile phones to the rural poor has provided new opportunities for income generation and poverty reduction, Torero and van Braun (2005). In addition, other innovations like the Internet offer new opportunities that are yet to be fully exploited.

It is also worth noting that, as shown in Fan, Zhang, Rao (2004) for rural Uganda, infrastructure investments do not have to be costly to have a sizeable impact. Indeed, investments in low-grade roads (i.e., feeder roads) reduced the number of poor Ugandans by over three times as much as

investments in more costly high-grade roads (i.e., murrum or tarmac trunk roads). Similarly, Fan and Chan-Kang (2005) show that an additional 1 km of low-quality roads has a higher return than that of high-quality roads in rural areas of China although the opposite is true for urban areas. Moreover, an additional one million yuan invested in high-quality roads has much lower effects on poverty reduction than a similar investment in low-quality roads.

A recent study in Uganda (Aguma, 2005) concluded that the government's expenditure on rural roads was the most powerful determinant of the reduction of poverty in rural areas. Poverty reduction elasticity of rural road investment quoted by the study is -0.1 (i.e. a one per cent increase in government expenditure on rural roads decreases the poverty index by 0.1 per cent). More so, a number of studies have been conducted (Sakko 1999, TRIP, 2004; TRIP 2002, MRD, 2002) that looked into the impact of rural roads on the overall socio-economic wellbeing of rural people, an overwhelming majority of whom are poor. Two studies (TRIP, 2002; TRIP, 2004) reported a rise in income levels of rural households, and the creation of more income generating opportunities, after the construction of rural roads. Rehabilitation of rural roads has also created direct employment opportunities for the unemployed local labourers. Conclusions from another study (MRD, 2002) conducted under the Asian Development Bank assisted Rural Infrastructure Improvement Project (RIIP) produced similar results. Evidence also suggests a significant increase in non-farm activities (e.g. the opening of roadside shops) following road improvements (MRD, 2002).

In addition, considering that there exists a significant income gap between urban and rural areas in most developing countries, these poverty effects of infrastructure may also contribute to reducing rural/urban income inequality as illustrated by Calderón and Servén (2004). They show that income inequality declined with higher infrastructure quantity and quality in rural areas of developing countries between 1960 and 2000.

However, the impact of investments in road infrastructure on the poor may be very limited if services are not affordable for the poor. Appropriate pricing of services has been a very controversial aspect of the reform towards privatization of the provision of services, such as water, traditionally provided by the public sector.

2.1.7 Rural Road Infrastructure, International Competitiveness and Globalization

In this section, it is clear that insufficient domestic rural infrastructure is a major bottleneck to achieving the potential benefits from international trade liberalization and other aspects of globalization. Without significant investments in rural infrastructure and related institutions such as roads, transportation, and market institutions, low-income developing countries and low income communities will not fully integrate into the process of economic globalization. China's recent experience illustrates the point. During China's reform period, the trend towards dual economies was further strengthened with a large share of the rural population, particularly those living in remote areas, falling further into poverty while the urban population and people living in rural areas with good road infrastructure benefited from the opening of the economy towards more trade. Irrespective of the ethical problems and the economic gains foregone, such a development is likely to create social instability.

However, despite the importance of agricultural exports for low-income developing countries, the performance of most developing countries has been disappointing. The share of developing countries in total agricultural export values decreased from 32.3% in 1975 to 29.5% in 2004. By regions, during 1975-2004, Africa's share decreased the most from 8% to 3%, while that of East and South Asia slightly increased from 5% to 7%. At the country level, Brazil and Thailand performed relatively better, and the share of Brazil and Thailand increased from 3.9% and 1.2% in 1975 to 4.5% and 2.0% in 2004, respectively. On the other hand, the share of Uganda decreased from 0.21% to 0.06% during the same period, FAO (2005).

One of key determinants of international competitiveness would be the availability of adequate and efficient domestic infrastructure. Better domestic infrastructure could contribute to international competitiveness through at least three channels: (1) improving price competitiveness; (2) improving non-price competitiveness; and (3) attracting foreign direct investments (FDI), Oshikoya and Hussain (2002).

Price Competitiveness: Key determinants of a country's price competitiveness in International agricultural markets are wages, labor and land productivity, transportation costs, input costs, and exchange rates. In most low-income developing countries, it is observed that high transportation costs, low productivity and unstable supply of basic inputs such as electricity, cause reduced price competitiveness of those countries. For example, in Burundi in the early 1990s, the average road transport costs for exports were 17.4% of cif prices with breakbulk and 13.6% of cif prices with containerized shipment, Oshikoya and Hussain (2002). It is also empirically shown that investments in export sectors are less productive in poorer countries, Dawson (2005). To improve the situations, further investments in domestic road infrastructure as well as institutional and policy reforms are essential.

Non-price competitiveness: There are two major aspects of non-price competitiveness: (1) marketing-related aspects and (2) the quality of products. Better quality transport services (i.e. faster and safer) are also crucial for improving non-price competitiveness. In addition, improvement in the supply of basic utilities (e.g. gas, water, and electricity) is essential for improving the quality of products.

Foreign Direct Investment (FDI): Private capital inflows have been increasingly recognized as one of the most important factors for successful development of export sectors. Some studies demonstrate that the status of domestic road infrastructure is an important determinant of the magnitude of private capital inflow such as FDI, Wheeler and Ashoka (1992), Asiedu and Donald (2004). Efficient transportation, reliable energy supply, access to safe water, and modern telecommunication systems are critical to attracting investments from outside a country.

2.1.8 Rural Road Infrastructure's Current Status in Selected Developing Countries

Having made the case for improved rural road infrastructure to facilitate agricultural development, poverty alleviation and international competitiveness, it is now worth turning to the existing evidence about the current status of rural road infrastructure.

In general, the status of rural road infrastructure in most developing countries is far much poorer than in developed countries. The problem of poor road infrastructure is particularly severe in the least developed countries. For example, while 73% of the roads were paved in OECD countries in 1990, only 16% were paved in the least developed countries. Worse still, the percentage of paved roads decreased to 13% in the least developed countries during the 1990s and increased to 88% in OECD countries (World Bank 2005). A comparison between the road density in Africa in the early 1990s and the road density in India in 1950 provide a powerful illustration of the infrastructure problem facing Africa. Many of the African countries are landlocked and the very limited rail system reflects colonial times priorities to link mines to harbors.

Data for other rural road infrastructure in developing countries is very scarce. Such data is publicly available only for five developing countries i.e. China, India, Tanzania, Thailand and Uganda, and the status of rural road infrastructure tends to be better in Asian than in African countries. For example, although Tanzania has around a 70% larger land area than Thailand, as well as a larger share of its land in rural areas, the total length of rural roads in Tanzania was less than 30% of that in Thailand in 2000.

Lastly, it is worth noting that implication about rural road infrastructure can differ widely between different data sources even within the same country. Fan and Zhang (2004) compare the newly calculated Agricultural Census data in China with the official data which are published previously in various China Statistical Yearbooks by the State Statistical Bureau (SSB). The Census data for road density, rural telephone, and rural electricity consumption are 34%, 43%, and 30% higher than the official data released from SSB, respectively. This finding indicates the difficulty of obtaining reliable measurements of rural infrastructure (including roads) in developing countries.

2.2 About Investments in Rural Road Infrastructure.

Despite high economic returns to infrastructure investments, annual infrastructure investments in developing countries appear to have decreased during the 1990s. This sub-section examines potential reasons why.

Developing countries' infrastructure, including rural road infrastructure, is financed by three main sources: the public sector, the private sector, and official development assistance (ODA). During the 1990s, around 70% of investment in infrastructure came from the public sector; around 22% from the private sector; and around 8% from ODA (World Bank 2004). Thus, the domestic public sector is clearly the key player for financing infrastructure in developing countries. This should be no surprise since most of the infrastructure has public goods characteristics.

Although the data about public investment in infrastructure on roads in developing countries is scarce and scattered, the amount of the investment appears to be 2-4 percent of GDP on average in most developing countries, Briceno-Garmendia, Estache, and Shafik (2004). The level and inter-temporal changes of public investment in infrastructure varies across countries. Calderón and Servén (2004) estimate the levels of public investment in infrastructure in nine Latin American countries and show that, in 1997, the levels ranged from around 4.5 percent of GDP in Colombia to about 0.2 percent in Argentina. In most developing countries, however, public investment expenditures, particularly in road infrastructure, have been reduced disproportionately due to fiscal retrenchment during the 1990s. For example, during 1992-1998, public investment in infrastructure decreased from about 1.0 to 0.2 percent and from about 4.0 to 2.0 percent in Argentina and Bolivia, respectively. Among sectors, the decline was sharpest in the power sector in Argentina, and in the transport sector in Bolivia, (Calderón and Servén, 2004).

The decline in public investment in infrastructure has been compounded by a sharp fall in Official Development Assistance (ODA) for infrastructure investment. For example, the commitment level for infrastructure of multilateral development banks declined from \$18 billion in 1996 and \$13.5 billion in 1999. These commitments recovered to about \$16 billion in 2002. Similarly, bilateral development aid for infrastructure investment declined from \$15 billion in 1996 to about \$8 billion in 2002, representing a decline in the relative share of infrastructure in their total commitments from 27 to 14 percent.

The same also happened to private investment in developing countries' infrastructure which decreased during the 1990s. A main source of private finance is commercial banks, often in connection with officially backed export credit agencies and multilateral organizations. During the 1990s, the private investment was about \$67 billion per year. It peaked at around \$120 in 1997 and decreased to around \$50 billion by 2001, World Bank (2004).

The reduction in the public infrastructure investment could be attributable to the following reasons: (i) In earlier investments in infrastructure, successful cases were minor to failed cases, especially in rural areas; (ii) Private sector participation in infrastructure investments was very low; (iii) fiscal adjustment programs; and (iv) Mismatches between resources and needs as a result of decentralization. In this context, obtaining higher revenues required for financing infrastructure investments through higher taxes may be perceived to negatively affect overall economic growth. Thus, even where the importance and profitability of infrastructure is recognized, it is often difficult for donors and governments to design and gain approval for specific investment programs. Moreover, postponing large and costly infrastructure investments is far easier for a Ministry of Finance than cutting current expenditures such as public sector wages and debt services, Briceno-Garmendia, Estache, and Shafik (2004).

Another indirect but important cause is that subsidies in OECD countries result in low international prices for agricultural commodities such as sugar, cotton, groundnuts, maize, rice, meat, and dairy products. The use of these artificially low prices in ex ante estimates of expected economic returns from investments in rural areas will reduce the economic justification for making such investments.

The outcome of Continued Low Investments

What are the consequences of these low investments in rural infrastructure in developing Countries? In previous parts of this report, it has been shown that increasing investments in rural infrastructure is essential for agricultural growth, overall economic growth, and poverty alleviation. Therefore, failure to make such investments would be a critical bottleneck for future growth in agricultural and economic output and poverty alleviation in developing countries

generally and Uganda in particular. Moreover, low levels of domestic infrastructure reduce competitiveness in international markets and make it very difficult for low-income countries to capture benefits from trade liberalization and international capital markets.

How Much Investment is Needed?

It is very difficult to estimate how much additional investment in infrastructure is needed in developing countries. Estimates of the investments needed to bring rural road infrastructure up to an appropriate level differs widely among countries and institutions depending on the nature of soils and terrain. So far, there are only three studies that attempt to estimate the aggregate amount of infrastructure investments needed for developing countries. The estimates in these studies are not directly comparable because they examine different sectors based on different judgment of an appropriate infrastructure level. Thus, the presented estimates are simply for reference. Because these estimates are evaluated at different points in time, they are deflated using IMF's world consumer price index (2000 = 100) in order to estimate present values.

In a background technical document for the World Food Summit 5 years later, FAO estimates that the investment needed for support services and infrastructure, most of which would be public funding, to achieve the World Food Summit goal was \$53.7 billion for the period 2002-2015, FAO (2002). In a subsequent publication completed in 2003, FAO (2003) estimates that \$7.3 billion would be needed annually for investment in rural infrastructure and improved market access in developing countries (\$6.3 billion for new construction and maintenance of roads). On the other hand, Fay and Yepes (2003) demonstrate that a much larger amount of infrastructure investments will be needed in order to meet the demand for roads, railroads, telecommunications, electricity, water, and sanitation in developing countries during 2005-2010. According to their estimates, about \$465 billion per annum is needed for all developing countries during 2005-2010, half of which would be for new infrastructure and the other half for maintenance. About \$75.7 billion is needed only for the new construction and maintenance of roads, which is more than ten times as large as the estimate in FAO (2003).

2.3.0 Road Net Work Classification

The ministry of works and transport services gives a classification of roads placing them in groups because of similarities in levels of administration, function or service they supply and condition of the road. Accordingly, the purpose of classification is to give an indication of the importance of the road, hence providing a basis for establishing policies that guide management of roads. The examples under management include level of funding for maintenance, standards for planning, design and operation and access control.

In Uganda, the technical manual gives four major classification of roads which include; trunk roads, district roads or feeder roads, urban roads and community access roads. These constitute the major road network in Uganda and the level of responsibility. For trunk roads, the responsibility lies in the hands of Ministry of Works and Transport while feeder roads fall under the responsibility of District Local Government. For urban roads, the Urban Authorities as defined by the Urban Area Map Gazette and community roads are under the responsibility of the Sub-county or Local Council III Administration.

In line with the above, Fay, M. and T. Yepes (2003) further gives design classes of district roads which range from class I, II to III. Class I serve national interests in that they satisfy criteria established for secondary or tertiary road system within the trunk road system. These qualify for upgrading to trunk road system provided they meet the standards. The class II district roads provide the basic district internal transport needs. These interconnect the district capital and county administrative centres. The class III district roads are characterized by low volume traffic extending into sparsely populated peripheral areas of the district. They do provide direct routings to major public activity centres.

The design class and standards as given above, are directed by the road functional class, together with other indicators such as existing and predicted levels of motorized traffic using the road. It is important to note that the design class serves as a guide for the selection of appropriate geometrical design standards for road construction and subsequent levels of routine and periodic maintenance. In this case, speed criterion is not a more important role than the access of a road

as far as geometric design standards are concerned but it gives a means of relating the road class to the appropriate geometric design.

2.3.1 Lay out of the road

In his technical manual, Komakech Henry (April 2008) gave the lay out of the district road. Irrespective of the classification, the road should have a gravel cover, compacted and of a given thickness. This cover should have a gentle gradient that allow or keep off surface water. He further gives the side slopes which should have erosion protection. The gradient and side slopes may differ according to the different class of the roads. The gradient should be 8% and in the class III roads, it may face one side. Henry further gives the road components as formation width, carriage way, shoulder break and camber, a section that drain the rain water from the carriage way to the side drain.

Drainage according to him, is a long flat bottomed excavation running along the side, designed to collect and drain away surface water from the carriage way. Keeping off water from the road surface could be technically done using side drain mitre drain, catch water drain, scour checks, head walls, wing walls, apron, cut-off wall, inverts, gradient, culvert, bridge, ford to mention but a few. Any of these keep off water from the road implying that water could be the biggest problem of road maintenance.

Culverts which are different from bridges are structures that allow natural water courses to safely cross under the road way. But these also require a number of technical know how in order to install them in an attempt to keep good feeder road network.

2.4 Feeder Road Supervision

Oshikoya, W.T and M.N. Hussain (2002) define supervision as a managerial tool that ensure execution in accordance to the set standards. In supervision, the supervisor and supervisee should have agreed terms of reference that constitute the standards to follow.

In the Labour Based Technique Supervision manual, the author refer to the standards as a check lists that constitute the clarity of instructions.

The same manual emphasizes the need to have a management team when carrying out project work on roads. Among the members of the management team, supervising technician is highlighted and charged with the responsibility of controlling all the technical aspect of the road project.

Following the decentralization of services, different levels of administration are charged with different roles in the feeder road network rehabilitation and maintenance. The Labour Based Technique Supervision Manual, the author gives the drawing of technical specifications referred to as Bills of Quantities (BOQ) to the consultants of the Ministry of Works under her different directorates. These are usually sent to the districts to maintain a uniform out look and the general standards national wide. However, given the differences in the needs and requirements of feeder roads at the District level, there is an Engineer In-charge of Road who prepares the Bills of Quantities (BOQs) in accordance to the general standards that are technical, though this could be backstopped by the Ministry responsible.

“During the road works, the District Road Engineer (DRE) should carry out supervision of the works and ensure that the works are carried out to the required standards as specified in the contract document” Labour Based Technique Supervision Manual (2004: 4)

The author further warns that failure by the Engineer in this stage may lead to inferior workmanship and quality of works and no value for money. The manual recommends constant communication between the contractor and the Engineer. In the case of Uganda where there are a number of structures under the decentralization for delivery of services, at county level there are road Inspectors who can play the role of the District Road Engineer.

A measure in place to control the works of the contractor are forms which are signed by the technical person to certify that the work is done in line with the agreed terms. For any successful road works, all the different levels i.e. National District and county should reinforce each other.

The district requires support from the center while the district should keep the road inspectors and the later help the contractor to implement the agreed terms in the contract document.

CHAPTER THREE

METHODOLOGY

3.0 The Research Design

This study employed a cross sectional design which was both qualitative and quantitative. The qualitative and quantitative reinforced each other in order to come up with a clear analysis of the study variables. It further helped in coming up with reliable data on the factors that affect the state of feeder road net work in Kibaale District.

The quantitative design helped in giving statistical data on certain issues that required figures. However, in an effort to explain the statistical data, explanations were used. In some cases the questions required a description of the state of feeder roads.

3.1 Target population

Table 01: Sample Selection Table.

Category of persons	Target Population	Sample	Percentage Representation
1. Administrators	25	16	64%
2. Engineering Staff	24	18	75%
3. Accountants	31	16	51.6%
4. Extension workers	60	45	75%
5. Politicians	84	10	12%
6. Registered Business Community at District	103	35	34%
Total	327	140	43%

The category of people in the table above include:

- Administrators i.e. Assistant CAOs, Sub-county Chiefs, Deputy CAO and CAO.
- Engineering staff i.e. County Road Inspectors, District Engineer, Assistant Engineering

officers and Parish Chiefs in-charge roads.

- Accountants i.e. Chief Finance Officer, Senior Accountants, Auditors and Accounts Assistants.
- Extension Workers i.e. Community Development Officer, Health Assistants and Production Extension Workers.
- Politicians i.e. Hon. Councilors and Chairpersons at all levels.
- Registered Business Community at district level i.e. Contractors/Tenderers and other business men working with the district.

The above categories of people were targeted due to the knowledge they have on feeder road rehabilitation and maintenance and resource allocation for feeder road works under PAF programme.

3.2 Sample selection techniques

Cluster random sampling technique was used to select the respondents. This helped in giving consideration on the different categories of respondents for this study. The clusters included different departments and different communities that were considered to have knowledge on feeder road network.

For each cluster, the names were listed and given numbers. Then the numbers were written on small pieces of paper put in a container charred and blind foldly one at a time was picked up to the required target.

In order to get reliable data from some key respondents who had been left out by the major cluster sampling technique, purposive selection technique was used.

Simple random sampling technique was used to select the roads to be sampled. Each road was given a number written on a small piece of paper which papers were put in container and picked randomly one by one. Which ever number was picked, that road was taken as a sample and these constituted slightly more than 50% of the total number of feeder roads in the District. This

percentage was decided in order to get a clear state of feeder roads by the researcher through observation method.

3.3 Sampling frame

The sampling frames used in this study included the different lists of staff under the different strata. These were got from the respective departments. However, some sampling frames, such as for businessmen, were developed as some of the targeted respondents could not be covered by the existing frames at that time.

3.4 Sample size

In reference to the sample selection table above, a total of 140 respondents out of 327 persons were selected reflecting 43% of the target population.

The researcher selected a total of 17 road links out of 33 road links which were randomly selected to give an equal chance to each road and these were studied by the researcher through observation method to supplement the data collected by other methods.

3.5 Response rate

A total number of 140 questionnaires were given to respondents and only 128 were filled and returned representing 91.4% response rate. One hundred and two (102) of which, were males, while twenty six (26) were females.

3.6 Measurement

The factors that determine the status of feeder roads were measured through funds involved, field reports produced and kilometers worked upon. The relationship between the feeder roads status (as a dependent variable) and other factors like supervision, funds, the equipments etc. (as independent variables) revealed that, the status changed depending on the charges by the

labourers and not as a result of a bigger percentage of funds released from the centre against the budget i.e. the percentage change in the budget releases was not commensurate with the percentage change in the charges by the labourers on these roads.

3.7 Type and sources of Empirical data collected

Primary data involved the use of questionnaires, interviews, and observation. The primary data collected involved the use of Questionnaires. This would collect the options of the respondents as they would independently fill them. This would give the findings of the people which are independent from the influence of the researcher.

The interviews conducted by the researcher enabled him to capture the in-depth explanations through probing for clarity of the findings of this study.

Observations were used to get non verbal communication messages and spot check for reliability and accuracy of information collected by the researcher.

Secondary data involved; checking payment vouchers, field reports, final accounts, approved budget estimates, reading text books, journals, road implementation guidelines and manuals, PAF guidelines, internet and other roads related reports from different sources.

3.8 Data collection instruments

These included self administered questionnaires, interviews and observation. The respondents were required to tick their options and given liberty to annex a brief write up on the questionnaires which they could do where necessary.

Questionnaire method

The questions were open-ended and the method was selected because the respondents could easily answer without supervision and the researcher's influence in continuous explanation all the time.

Secondly, due to the nature of respondents, the method allowed answering the questionnaire at their own time with out interfering with their working hours. This could not be possible in case of using other methods like face to face interviews or group discussion.

Interviewing method

The unstructured type of interviewing method was used with the other category of the illiterate and semi literate because of its flexibility, whereby the researcher would gather supplementary information not included in the questionnaire but useful. Such information could give supplementary evidence as it would allow probing. It also allowed the assessment of the non-verbal behaviours such as facial expressions, had a high response rate and respondents were not able to write but willing to give information.

Observation method

This method is advantageous because it was free of response errors, provided richer and more accurate results and saved time e.g. it could not require one to ask about whether there is a broken bridge on a certain road link when the researcher himself had failed to use the same route due to that very broken bridge.

3.9 Presentation and analysis of the data

The collected data was edited and coded following similar responses. Then tabulation and frequencies of responses were generated. Descriptive statistical analysis was done following the different themes that were developed in the first chapter. This helped in putting the collected data into meaningful forms for easy interpretation and understanding.

3.10 Study limitations:

- **None response from some selected individuals.**

This was overcome through continued sensitization of those respondents about the importance and intended purpose of the study. Secondly, the researcher used call backs other than giving up i.e. raised those respondents on phone and revisiting them at their work stations.

- **Complexity in getting feeder road data.**

This was overcome by visiting different study libraries, statistical bureaus, reports from departments, and the internet.

- **Returning of incomplete questionnaires**

In some cases, respondents returned half filled questionnaires. This would affect the quality of data expected as the flow of information could abruptly come to an end without justification.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

4.0 Introduction

This chapter shows the results that were analysed from raw data obtained from the field and also secondary data from the already existing information. Frequencies and Percentages were the main tools used for analysis as they clearly bring out the salient issues. Though problems were encountered during the study, the secondary data collection guideline and questionnaires used were specifically designed to establish which factors could have contributed to the poor state of feeder roads in our country and using Kibaale District as the case study. i.e. by examining the amount of resources allocated to the feeder roads sub-sector, assessing the development and status of feeder roads for the past four financial years, exploring the challenges and problems faced in developing feeder roads, and examining the policy options for enhancing the development of feeder roads.

Out of the 140 respondents that had been targeted, only 128 responded; 102 (One hundred and two) respondents were males while 26 (Twenty six) were females. Sixteen (16) respondents were district, engineering department and county staff, 24 were Sub-county officials while 88 included different categories of road users. The civil servants who contributed to this data had differing qualifications, the highest being Bachelors degree. A total of 24 (twenty four) tables were drawn interpreting data collected according to the raised questions, and below each table is the analysis of the information therein.

4.1 Analysis on resources allocated to feeder roads

In this study the researcher was interested in establishing the level of resources/money allocated to feeder roads of Kibaale District Local Government (KDLG) and concerned himself with the budgeted and received funds from the centre, and paid contractors figure against awarded contract price. The later two were found rhyming. The objective of this section was to examine the amounts of resources allocated to the feeder roads sub-sector and the key question to address

it was; “What is the level of resources/ money allocated to feeder roads”?

The findings are given in table 02 below;

Table 02: Showing how much was budgeted for feeder roads Vs what was released by the centre.

Financial Year	Projected Ug. Shs.	Total Budgeted	Total Received	%age Received
2004/05	10,990,583,000	691,973,000	380,135,000	54.93
2005/06	9,067,657,000	422,600,000	328,051,397	77.63
2006/07	7,972,515,000	320,915,000	225,135,784	70.15
2007/08	8,958,592,000	554,684,500	540,739,817	97.48
Total	36,989,347,000	1,990,172,500	1,474,061,998	74.07

Source: Secondary Data- Kibaale District Local Government Final Accounts (Guideline – Questions 1 & 2)

As per the above table, it was found out that, there was a diminishing trend on both the budgeted for and released funds from the centre since 2004/2005 apart from 2007/2008 when a slight positive change was noted on the receiving side i.e. by comparing receipts of 2004/2005 with that of 2007/2008. A total of shs. **1,990,172,500** was budgeted for as shown in the table above.

The researcher was also interested in finding out how much total amount was released by the central government for feeder roads Sub-sector. The same Table 01 above shows that shs. **1,474,061,998** was released for feeder roads in the four years referred to. This stands at 74.07% of the total budgeted for, and therefore not enough to cover all the budgeted for activities.

A further scrutiny of the availed records reflected that, the central government sends Indicative Planning Figures (IPFs) to the district at the end of a financial year which has to be used as a basis while budgeting for the following year. 74.07% total received is a fair percentage, but since the roads are still in a bad state, it implies the IPFs released to the district are not satisfactory i.e. under estimate the involved activities in feeder roads. The results of the table reflected a diminishing trend on both the budgeted and received funds when compared with the figures of

2004/2005 financial year, though 2007/2008 shows a slight increment on the received funds of 42.24%.

The researcher was also interested in knowing whether there were any feeder roads contractors not yet paid for the work done. Examination of records got from Engineering department reflected no outstanding debts for feeder roads contractors. There were even no claims pending authorization. Further, no domestic arrears for Feeder Roads had been reflected in the budget estimates. This shows that all contractors had been paid fully for the work done.

In addition, the researcher required to find out how much had been quoted by the feeder roads contractors in their application for works. The KDLG Tender Board's and District Contract Committee (DCC) opening of bids minutes revealed that a total of shs.1,241,240,550 had been quoted by the contractors, and consequently, had been awarded as quoted according to the award of tenders minutes.

Further more, the researcher sought to know how much was actually paid to the feeder roads contractors. Examination of the payment vouchers obtained from Engineering department (Accounts Section) reflected that a total of shs. 1,241,240,550 had been paid out to feeder roads contractors. This was also aimed at finding out if there were any discrepancies between the two i.e. the awarded figure and what was paid out. The two were found rhyming.

The difference of shs. 232,821,448 between the received amount from the centre and that paid to contractors, was money spent on the technocrats' facilitation and repairs and servicing of the motor vehicles and motor cycles available for roads.

Basing on the findings as per details given above, it is clear that the central government does not send all the budgeted for amounts and this affects the performance of the district as regards improvement on rural feeder road network. Additionally, the results indicate that a lot of activities are left out because the district has to budget within the Indicative Planning Figures as released by the centre, and not necessarily as per the district projections/ requirements.

4.2 The status of feeder roads.

In order to get the exact picture on ground, it was very essential to involve the entire public to give in their views on how they analyse the situation at hand, since they are the direct users of these roads. Civil Servants, self employed and other businessmen were asked to comment on the state of feeder roads for the past four years.

The section shows that the status of the feeder roads is actually bad to date, though some positive change was noted compared to the early 1990s according to the respondents. However, a lot is still desired to have these roads in a fair/ good state. The objective of the section was to assess the development and status of feeder roads over the last four Financial Years and the key question to this effect was; “What is the status of feeder roads in the district?”

Table 03: Showing the status of feeder roads.

Response	Frequency	Percentage
Excellent	-	0
Good	03	2.3
Fair	41	32.0
Bad	51	40.0
Very bad	33	25.7
Total	128	100

Source: Primary Data (Questionnaire – Question 06)

The results in table 03 above showed that the roads in the district are bad. However, 32% of the respondents argued that the roads were relatively fair compared to the early 1990s before decentralization, and further commented that, with the coming of some donor fund from Ireland and Belgium through KDDP and KDDSP, the roads improved greatly. On the other hand, 25.7% declared that the roads are very bad. They attributed this to the corruption which they said is rampant among the technocrats that they simply certify works which are not well done and payments are effected. Only 2.3% of the respondents appreciated that the roads are good.

Having got the results on the status of feeder roads, the respondents were asked to show whether there was any notable change in the condition of feeder roads following the trend from 2004/05 financial year.

Table 04: Showing whether there has been change in the condition of feeder roads.

Response	Frequency	Percentage
Some change noted	91	71.1
No change noted	34	26.6
Un-decided	03	2.3
Total	128	100

Source: Primary Data (Questionnaire – Question 07(i))

Table 04 results above; clearly indicate that there has been a notable change in the condition of feeder roads as represented by 71.1%. However, the table does not show the trend of the change whether positive or negative. This will be seen in the table to follow. On the other hand, 26.6% respondents as noted in the table say that no change was noted at all during the past four years. To them, the roads remained in the same state as ever. 2.3% respondents remained un-decided, they could not tell whether there was any change in the condition of these roads or not.

The researcher was also interested in finding out the caliber of change noted whether positive or negative.

Table 05: Showing the caliber of change noted.

Response	Frequency	Percentage
Positive	54	57.5
Negative	32	34.0
Un-decided	08	8.5
Total	94	100

Source: Primary Data (Questionnaire – Question 07(ii))

From the results in table 05 above, 57.5% respondents had noted a positive change. They commented that the roads are now a little bit motorable, some road sections are graded, rehabilitation on some roads has also been noted, the size has a bit widened, trees along sides have been cut and lessened, desilting of culverts and that it now takes relatively a shorter time to commute from one place to another.

However, 34% respondents noted a negative change. They commented that, the road users have resorted to work on the worse off portions themselves which was un-heard of before, mere soil is being used to fill pot holes instead of murram, that some roads are now impassable completely, culverts are not properly leveled in some areas, roads are only worked upon when a big/important visitor is expected. To them, the situation has worsened with the phasing/closure of donor programmes like Irish Aid (KDDP) and KDDSP (IFAD – Belgium) that used to argument Government of Uganda PAF funds for road works. Rains have also intensified in the last three years, coupled with little funds and therefore most of the feeder roads in the district need rehabilitation and there after, engage workers to maintain them payable on a monthly basis. Heavy trucks moving on these roads especially those ferrying timber have caused a great impact/played a big role on spoiling these roads. 8.5% respondents remained un-decided on whether the change was positive or negative.

As per the findings, it was noted that there was a positive change in the state of the district feeder roads though a lot is still desired. The respondents were making a comparison on these roads

currently, with the status of the same roads during the 1990s when the district was still under Hoima District Local Government.

Given the findings above, it was concluded that there was a positive change in the state of district feeder roads compared to the past years. However, given the fact that there has been consistent increased funding every year, a lot was still left to be desired. The funding which was based on indicative planning figures that does not put into consideration the district requirements, the shoddy work coupled with corruption and to a certain extent the effects of the weather affected negatively the state of feeder roads in Kibaale District.

4.3 Analysis on the challenges and problems encountered in developing the feeder roads.

The researcher was interested in getting the data on the challenges and problems encountered in developing the feeder roads so as to suggest recommendations which if used could help in minimizing or wiping out such challenges and problems. In this case, it was noted that some of the challenges and problems encountered included, but not limited to, inadequate funding by the centre, poor/ bad soils of the roads, inadequate supervision by the engineering department staff, inexperienced contractors used on these roads, delayed release of funds by the Central Government yet there is a condition that no instructions should be given to contractors to begin work before the funds to pay for their services is credited on the district account, professionalism on the part of the engineering staff, facilitation to the engineering staff (roads) which was found to be inadequate, non-availability of the road equipment, contractors not following the advise which is normally given by the technocrats, un-realistic budgeting i.e. just to keep within the IPFs given by the centre to districts leaving other activities un-catered for, and non-assessment by the Central Government on real issues on the ground but merely basing on reports from districts when releasing funds. However, the recommendations that have been drawn at the end of the study will contribute a lot in solving these challenges and problems. The objective for this section was to explore the challenges and problems faced in developing feeder roads with the key question to address it being; “What are the challenges and problems encountered in developing the feeder roads”?

The researcher was interested in finding out the adequacy of funds allocated to feeder roads, since money is the life blood of every activity for any success to be achieved.

Table 06: Showing the adequacy of feeder roads funds

Response	Frequency	Percentage
Adequate	18	14.1
Inadequate	105	82.0
Un-decided	05	3.9
Total	128	100

Source: Primary Data (Questionnaire – Question 08)

Results from table 06 above indicated that funds allocated to feeder roads were inadequate and could therefore not cover all activities necessary in the development of these roads. This was by 82.0% respondents, and that inadequate funds have lead to the continued deterioration in the condition of feeder roads as many activities are left out because the district cannot commit itself without assured source of funds. 14.1% respondents commented that, the funds allocated to feeder roads are adequate but that the technocrats divert these funds to personal use. They also blamed the central government that it does not make proper follow up on the utilization of these funds released to districts. Additionally, these are conditional grants and roads are part of the PEAP areas which should not be tempered with, and have utilization guidelines which have to be followed. 3.9% respondents remained un-decided and could therefore not tell whether the funds released to feeder roads were adequate or not.

Further, the researcher required to find out whether the road soils where the district roads pass are good or bad. Bad soils lead to easy spoilage of roads and expensive to maintain, while good soil roads are cheap to maintain.

Table 07: Showing the class of the road soils.

Response	Frequency	Percentage
Good	57	44.5
Bad	66	51.6
Un-decided	05	3.9
Total	128	100

Source: Primary Data (Questionnaire – Question 09)

Results in the above table show that, the road soils are bad as shown by 51.6% respondents. To them, the roads are too slippery and muddy due to bad soils. They are too fertile which leads to quick growth of grass in the mid of the roads and at the sides resulting into vehicles getting stuck, and therefore suitable for cultivation only. 44.5% respondents say that the soils of the district roads are good, only that the contractors don't do what is required of them, and there are no strict rules to penalize them. They were of the view that a penalty be introduced, and where the contractor desists completely, he should be black listed. 3.9% respondents remained un-decided and could not tell whether the soils are good or bad.

In addition, the researcher found it of necessity to know whether there was adequate supervision by the Engineering department staff on the feeder roads works. Supervision involves monitoring and evaluation by the technocrats and incase of any divergence from the set target activities, advise can be given and rectification made before the situation worsens.

Table 08: Showing the level/frequency of supervision by the Engineering department staff.

Response	Frequency	Percentage
Adequate	25	19.6
Inadequate	100	78.1
Un-decided	03	2.3
Total	128	100

Source: Primary Data (Questionnaire – Question 10)

From table 08 above, it is clearly indicated that supervision by the engineering department staff was inadequate as shown by 78.1%. However, on interviewing the Engineering staff, their argument was that, the obtained results from contractors is not as a result of inadequate supervision, but rather the contractors are handling tasks which are beyond their capacity, and that all the roads are over due for intensive rehabilitation which require road plants. On the other hand, 19.6% respondents were impressed that the supervision by the technocrats was adequate; which contributed a lot to the current situation of the roads. 2.3% respondents could not tell whether the supervision was adequate or inadequate.

Analysis on the experience of contractors was also a point of interest to the researcher and therefore had to find out whether the engaged feeder roads contractors are well versed in those works. With experienced contractors, there is minimized need of close supervision and better results are expected, the reverse is true for the inexperienced ones.

Table 09: Showing the experience of the contractors used on the district roads.

Response	Frequency	Percentage
Experienced	47	36.7
Inexperienced	79	61.7
Un-decided	02	1.6
Total	128	100

Source: Primary Data (Questionnaire – Question 11)

Table 09 results above indicate that the contractors used on these roads were inexperienced as shown by 61.7% respondents. Their concern was that there is no objectivity in the awarding of tenders, but rather a lot of political pressure, influence peddling, self-interests by the officials involved in these tenders, corruption of the highest caliber i.e. bribing by the applicants for consideration. Thus, giving whoever has coughed big. This leads to contractors doing shoddy work so as to remain with a difference/profit. However, 36.7% respondents reflected that the engaged contractors are experienced and know what to do except, the Engineering department

staff does not give them work instructions in time and as scheduled. The Engineering staff on their part upheld that instructions are only given basing on the available resources. 1.6% respondents were not sure whether the used contractors were experienced or not.

The researcher was also interested in knowing the promptness of releasing funds by the central government. According to the prevailing regulations by the central government, especially on the conditional grants, no works should be handled until the money is released by the centre to the district through their bankers which in turn sends an advice note to the district that their account has been credited by amount released. So, this acts as a prerequisite for tasks to be started on.

Table 10: Showing the rate at which funds are released from the Ministry of Finance, Planning and Economic Development (MoFPED).

Response	Frequency	Percentage
Timely	16	12.5
Delayed	106	82.8
Sometimes timely	-	0
Un-decided	06	4.7
Total	128	100

Source: Primary Data (Questionnaire – Question 12)

It is clearly indicated in the results of table 10 above, that there was delayed release of funds by the centre as shown by 82.8%. This affects the performance of contractors because such a delay may mean releasing funds when the weather has already changed i.e. from dry to rainy season. Secondly, no works are supposed to be done before such funds are released to district local governments. When the researcher cross examined the release advices kept by the district cashier, it was noted that releases come in late towards the end of the quarter and at times, after the end of the quarter for which they were intended. Yet the accountability of such funds is supported to be on schedule not exceeding the 15th day of the 1st month in the proceeding quarter. This tempts the Engineering department to give crash and rush instructions for purposes of utilizing/spending the money other than returning is back to the centre, leading to doing work

half hazardly by the contractors and at-times without proper supervision due to lack of time for such. Delayed release of funds was a general complaint by all stakeholders. On the other hand, 12.5% supported that the central government releases funds timely. 4.7% respondents remained uncertain on whether the funds were being released timely or delayed.

The researcher went ahead to find out the professionalism of the roads section Engineering department staff. Professionalism is an important factor in every field. Being a professional in any field implies having the required skills to enable you handle tasks in that line without any doubt, and of quality standards.

Table 11: Showing professionalism of the roads section staff.

Response	Frequency	Percentage
Skilled	56	44.0
Unskilled	68	53.0
Un-decided	04	3.0
Total	128	100

Source: Primary Data (Questionnaire – Question 13)

Question 13 (thirteen) sought to find out whether the road section staff are skilled in that field. The results from table 11 above show that the staff is unskilled as represented by 53% respondents. To them, this is a contributing factor to the bad state of the feeder roads in the district. On the other hand, 44.0% say the staff are skilled. They further commented that, the staff are hardworking and interested in their job. This was particularly for the Road Inspectors based at county level. It's only that they don't have all the required equipment to fulfill their role 100%. This prompted the researcher to find out from the District service commission and the staffs' personal files as regards their qualifications. The roads staff members had all the requirements as laid down in the jobs minimum requirements circular from the Ministry of Public Service. 3.0% respondents could not tell whether the staff was skilled or not.

In the same line, the researcher was interested in knowing whether the Engineering department roads supervision staff are facilitated. Facilitating staff in different forms is one of the motivating factors that can lead to positive results. Question 14(fourteen) required to find out the level of facilitation extended to the roads staff.

Table 12: Showing whether the staff are facilitated

Response	Frequency	Percentage
Facilitated	41	32.0
Inadequately facilitated	84	65.7
Un-decided	03	2.3
Not facilitated	-	0
Total	128	100

Source: Primary Data (Questionnaire – Question 14)

The results from table 11 above indicated that the staff are inadequately facilitated as showed by 65.7%. Inadequate facilitation directly affects the performance of the officers concerned as most of the activities remain unattended to. 32.0% respondents were satisfied that the staff are adequately facilitated. When interviewed, the staff commented that facilitation was actually inadequate especially on fuel. This reduces their frequency as regards on spot supervision. 2.3% respondents were not sure whether the staff were facilitated or not.

Further more, the researcher required to know about the availability of the road equipments, which include; graders, rollers, bulldozers, rammers, lorry tippers, etc. These are vital in the rehabilitation and/or maintenance of the feeder roads. Question 15 (fifteen) sought to find out whether there are road equipments and being used on these roads.

Table 13: Showing the availability of the road equipments to work on the roads

Response	Frequency	Percentage
Available	30	23.4
Not available	95	74.3
Un-decided	03	2.3
Total	128	100

Source: Primary Data (Questionnaire – Question 15)

The results from table 13 above indicate that equipments are not available to work on the roads as showed by 74.3%. They further commented that, none-availability of such equipments compels some contractors to hire from outside the district which becomes so expensive to them. 23.4% respondents say that the equipments are available but were not sure of the modalities to have them work on the feeder roads. They were skeptical as to whether they belong to the district or not. On interviewing the road staff, they responded that true, some equipments are available but it is not a full road plant and therefore cannot be relied on entirely. Secondly, they are very expensive to maintain given the little resources released to the road sector. Some respondents were not sure whether the road equipments were in the district or not.

For every activity, there are rules and regulations which have to be followed. In this respect, the researcher was interested in finding out about the adherence of contractors to the technocrats advise. Normally, there are laid down activities to be carried out, techniques to be applied so as to achieve the aim, and time frame/schedule to be followed. All this is possible if the guidelines and advise from the technocrats are followed.

Table 14: Showing whether the feeder roads contractors follow the advise given by the technocrats from Engineering department.

Response	Frequency	Percentage
Follow	39	30.4
Don't follow	83	65
Un-decided	06	4.6
Total	128	100

Source: Primary Data (Questionnaire – Question 16)

The results in the table above indicated that contractors don't follow the advise given by the Engineering department technocrats as shown by 65%. This could be one of the contributing factors to the bad state of the district feeder roads, because the outcome of such is sub-standard work and hence getting spoilt in the shortest possible time. There was a general public outcry that the roads repairs/maintenance done does not last for long yet originally, it could take to over four years before the roads go bad, and that the contractors were after high profits on the expense of quality work. On the other hand, 30.4% respondents contend that contractors follow the advise given to them by the technocrats, only that such advise is given at a wrong time, for instance when it has already started raining. 4.6% respondents were uncertain as to whether advise was being followed or not.

On the other hand, technocrats may be reluctant in playing their roles and fail to give due guidance/ advise to these contractors. On this note, the researcher was interested in finding out whether the technocrats normally gave advise to the contractors. Giving advise and being followed by the contractors are two different issues/scenarios. But before advise is given, the activities at hand have to be considered so as to select the best alternative to follow.

Table 15: Showing whether the Engineering staff normally advise the contractors on what to do.

Response	Frequency	Percentage
They do	64	50
They don't	58	45.4
Un-decided	06	4.6
Total	128	100

Source: Primary Data (Questionnaire – Question 17)

The results from table 15 above indicated that the Engineering staff normally gave advise to contractors on what to do as shown by 50% respondents. The advise given was mainly on the skills to apply, the tools to use according to the different activities and basing on the terrain, according to the answers the researcher gathered from the contractors directly during the face to face interview. However, they commented that some of the advise could not be applied because it could take long to accomplish the work yet the money paid is little. Such responses reflected the causes of the bad state of roads in the district. On the other hand, 45.4% respondents were convinced that the technocrats don't give advise to contractors. They were doubtful how one could be paid after work when he/she has not followed the advise given if at all such advise is actually given. This calls for total evaluation of the works done before effecting the payments. 4.6% respondents were not sure whether advise was being given or not.

Budgeting was also another area of interest to the researcher as one of the yard sticks which has to be followed in any activity. It shows how much is estimated and therefore expected to be enough for whatever to be done. Question 18 (Eighteen) required to find out whether the budgets prepared for feeder roads are realistic or not.

Table 16: Showing whether the budgets prepared for feeder roads are realistic or not

Response	Frequency	Percentage
Realistic	22	17.2
Un-realistic	101	78.9
Un-decided	05	3.9
Total	128	100

Source: Primary Data (Questionnaire – Question 18)

From table 16 above, the budgets prepared for feeder roads are un-realistic as shown by 78.9% respondents. The majority commented that the amounts estimated for each road link is not commensurate with the amounts demanded by the labourers on such roads. That the amounts involved are just an estimate of a fixed figure per kilometer not considering the nature of the road/terrain per road. This compels the contractors to quote amounts to keep within the 15% above or lower the reserve price which is allowable, so as to keep a relationship with the district. This factor does not consider the changing environment in the prevailing market prices, yet the labourers change their rates accordingly.

On the other hand, 17.2% respondents were convinced that the budgets in place were realistic, only that they were not being implemented fully. When contacted, one of the technocrats from the roads sector said that the budgets are realistic because Feeder Roads condition assessments and budgets are done annually by respective districts and costs per intervention calculated through a computerized programme “RAMPS” (Road Maintenance planning System), only that funds released by the Central Government or donors is normally not enough to meet the projected costs. This confirms the results obtained in 4.2.1 above. 3.9% respondents could not comment on whether the budgets were realistic or not.

The researcher was also interested in finding out on the assessment of feeder roads by the central government. Assessment is of paramount importance in every activity for it gives the clear picture on what is to be handled. Respondents were asked on how they rate the assessment of central government as regards feeder roads.

Table 17: Showing whether the central government covers all the areas/goes to the ground when assessing what is necessary for involvement in feeder roads development.

Response	Frequency	Percentage
It does	31	24.2
It does not	93	72.7
Un-decided	04	3.1
Total	128	100

Source: Primary Data (Questionnaire – Question 19(i))

72.7% respondents stated that the central government does not carry out assessment of feeder roads on the ground as shown by the results in table 17 above. To them, central government officials simply sit in office and depend on reports submitted from districts, send money without considering the costs involved in the feeder roads basic requirements, don't make any follow-ups/impromptu visits to find out whether policies laid down are followed, payments effected in time to both the contractors/ labourers, their non-appearance delays recommendation to have some of the roads graded with machines and up-grading to trunk roads. Further, that they are corrupt that is why they base on the district reports only for decision making they don't treat feeder roads as a priority yet these roads are being used by heavy vehicles as trunk roads, no strict rules on those doing shoddy work, don't make any roads environmental impact assessment, assessment done at the district level is during the dry season when roads are relatively okay, and that some roads are done under political pressure without proper assessment because the Engineering department staff fear for their jobs.

Additionally, they commented that the central government generalizes the conditions of roads in the country especially the maintenance costs yet this would depend on the nature of soils and terrain, roads funds are not commensurate with the deterioration rate which is very high and many roads are over due for rehabilitation and periodic maintenance, and beyond petty contractors capacity to handle. 24.2% respondents stated that the central government does the assessment only that there is information gap people don't differentiate between the visitors they see on these roads. But, basing on the response got from one of the roads sector technocrats about how assessment is done annually by use of the RAMPS computerizes system as stated in 4.2.10 above, such projections may basically be using a given percentage using the figures of a past Financial year as a basement, but not the exact situation on these roads. Therefore, that system may not be 100% reliable as to be very perfect. 3.1% respondents could not tell whether the central government carries out the assessment or not.

The findings obtained led to a conclusion that inadequacy of funds for feeder roads, type of soils, inadequate supervision by the Engineering department and inexperienced contractors were among other major challenges faced in maintenance of feeder roads in Kibaale District. Other issues included; delayed release of funds, inadequate facilitation to Engineering staff, unavailability of road equipment, failure by contractors to follow technical advise and poor monitoring by the Ministry and District authorities. All these remained un answered challenges in improving feeder road network, hence serious determinants of the state of feeder roads.

4.4 Analysis on the policy recommendations for enhancing the development of Feeder roads.

The objective for this section was to examine policy options for enhancing the development of feeder roads, and the key question in this regard was "What could be the policy recommendation(s) for enhancing the development of feeder roads?". Under here, the policy options/ recommendations considered included; Using different road contractors every tender period who can even be got from outside the district as long as good quality work can be produced; training of contractors who have won tenders every time they pass through so as to get acquainted with the new developments in this ever changing/dynamic world before commencing

any work; use of road machinery/ plant method preferred to the labour based method though at times the two need to be used hand in hand as some activities like desilting of culverts cannot be handled by the machines; imposing of a fine of between 21-40% on every contractor who does shoddy work and if he does not change then be blacklisted; and that a few feeder road links be worked on thoroughly first other than handling the total road network at ago.

The researcher required to know whether it was okay to continue using the same contractors on each road section on not.

Table 18: Showing whether the usual contractors on each road section should continuously be used.

Response	Frequency	Percentage
Yes	27	21.1
No	100	78.1
Un-decided	01	0.8
Total	128	100

Source: Primary Data (Questionnaire – Question 20)

The results in table 18 indicated that there should always be change in the contractors to work on each road section as shown by the 78.1% No. They stated that if one has been performing poorly in a given section and is left there permanently, that portion will remain bad forever. It is also an encouragement to work harder well knowing that he/she will be rejected else where if shoddy work is noticed in the current portion as no permanency would be guaranteed. On the other hand, 21.1% respondents stated that it is worth leaving these contractors in their sections because it motivates them to keep their portions okay and to be used as a point of reference, hence gaining prestige. Secondly, it is easy for such contractors to devise means on how to handle challenging portions on that section, and which part to start with. But all in all, there is no permanent situation in everything and change is a factor of life. Additionally, tendering out of works depends on the quotations given in the application vis-à-vis the reserve price. Therefore, being a successful bidder in a given season, does not mean being successful in all seasons. Feeder roads

contracts are like any other contracts and therefore, there is no permanency.

In the same line, the researcher required to know whether to invite contractors from outside the district would cause an impact in improving on the state of feeder road network.

Table 19: Showing whether feeder road contractors should be invited from any part of the country to encourage competition aimed at better results.

Response	Frequency	Percentage
Should be invited	95	74.2
Should not be invited	32	25
Un-decided	01	0.8
Total	128	100

Source: Primary Data (Questionnaire – Question 21)

74.2% stated that they should be invited, while 25% stated that they should not be invited. This implied that respondents were interested in having competition with hope of getting good quality work, rather than having a few individuals who are more or less on a permanent basis. This also explains the continued bad condition of the feeder roads which could be as a result of lack of competition in this line. The system in practice has been, utilization of the local contractors within the district aiming at earning a living for the indigenous. This has proved to be at an expense of quality. The 25% supporting non-invitation of outsiders urge that, such contractors will be expensive for nothing and only after high profits than having the district at heart.

Further, the researcher was interested in knowing whether training of contractors before commencing work can play any role in improving the status of feeder roads.

Table 20: Showing whether contractors should be trained before commencing work.

Response	Frequency	Percentage
Be trained	122	95.3
Not be trained	05	3.9
Un-decided	01	0.8
Total	128	100

Source: Primary Data (Questionnaire – Question 22)

The results as shown by 95.3% respondents in the table above, indicated that contractors be trained first. The respondents argued that, learning is a process and has no end. Refreshing the contractors minds even if they are aware of what to do is advantageous as new techniques can be impacted in them which may yield better results at the end, with minimum supervision. However, 3.9% respondents were not of that view. They commented that such trainings are expensive and since in their applications, contractors show the experience attained in such works there is no need to train them again. They opted that technocrats should train labourers instead while physically at work. There is need to have the roads maintenance guidelines consider these factors thoroughly.

It was also of the researcher's interest to know which method should be used between road machinery/plants and labour based methods. Questions 23 and 24 sought to find out the best method to be used between road plants and labour based methods. Road machinery/plants method involves use of such equipments like graders, rollers, bull-dozer, lorry tippers, etc. While labour based method involves use of labourers doing the work manually.

Table 21: Showing whether road machinery/plants should strictly be used on feeder road works.

Response	Frequency	Percentage
Yes	88	68.8
No	38	29.6
Un-decided	02	1.6
Total	128	100

Source: Primary Data (Questionnaire – Question 23)

Table 22: Showing whether labour based methods should strictly be used on feeder road works.

Response	Frequency	Percentage
Yes	63	49.2
No	63	49.2
Un-decided	02	1.6
Total	128	100

Source: Primary Data (Questionnaire – Question 24)

Results from table 21 above indicated that road machinery/plants should be used as shown by 68.8% respondents to 29.6% respondents for labour based methods. While results from table 22 above indicated that both methods are required and should be used concurrently as shown by 49.2% respondents.

Supporters of road machinery argued that, the roads are bad to an extent that the local hoes can no longer manage and there is need to have all roads rehabilitated because they have over stayed without being graded and that this situation has worsened due to non-usage of such machines. That, work covered by machines in a day is quite much compared to that on man labour based methods. However, they were also scared of the expenses such a method would involve, but were after good quality long lasting work. On the other hand, the contenders of labour based

methods were considering the monetary benefits for their children's' fees and the general well being of their entire families, and that in some areas, such road equipment cannot do e.g. in cutting papyrus in swamps, de-silting of culverts. Further, they argued that labour based method is more advantageous as regards preservation of nature, it is not as destructive as when the road machinery/plants are used and therefore no need of roads environmental impact assessment. Further, PAF programme at the back of its mind was after assisting the local people to earn a living through engagement in such works whenever they are in a particular area. The forwarded arguments from both parties should not be under valued but weighed and judged accordingly.

Further more, the researcher was interested in finding out whether a fine should be imposed on a contractor who does shoddy work as a percentage of his contract price.

Table 23: Showing whether to impose a fine or not

Response	Frequency	Percentage
Should be imposed	120	93.7
Should not be imposed	08	6.3
Un-decided	-	0
Total	128	100

Source: Primary Data (Questionnaire – Question 25(i))

A fine is a charge on any person whether natural or artificial for anything wrong done. In this case, question 25 requires to find out whether a fine should be imposed as regards poor quality work done by any contractor.

The results from table 23 above indicated that a fine should be imposed as shown by 93.7% respondents. To them, such a fine is intended to motivate them to work better so as not to loose what would be part of their profits which every businessman fights for. Secondly, it can encourage them to be time sensitive so as to accomplish their tasks before the bad weather drops in.

Further, they were convinced that after all contractors are trained, why can't they apply the knowledge acquired to avoid such embarrassment because no satisfactory reason can be fronted for the shoddy work. On the other hand, 6.3% respondents stated that no fine should be imposed on contractors because all contractors are trained first, get all the necessary skills and therefore cannot do shoddy work, except work schedule and instructions for works to be done are given late by the Engineering department when the rainy seasons are encroaching that spoil the accomplished work, coupled with the late release of funds from the centre. Further, the contractors do what is beyond the scope of their capacity and have no control on the weather and nature of soils which also dictate the condition of roads.

And again, the researcher valued it of importance to know the range of the fine to be imposed if it is decided that way.

Table 24: Showing the range of the fine that should be imposed on contractors who do shoddy work.

Response (Percentage Range)	Frequency	Percentage
Between 01-20	29	24.2
Between 21-40	48	40.0
Between 41-60	32	26.6
Between 61-80	04	3.3
Between 81-100	02	1.7
Un-decided	05	4.2
Total	120	100

Source: Primary Data (Questionnaire – Question 25(ii))

Results from table 24 above indicated that a fine ranging between 21-40% should be charged on every contractor who does shoddy work as shown by 40% respondents. This charge is aimed at instilling discipline in the contractors to do a commendable job.

Finally, the researcher was interested in knowing whether to work on a few feeder road links thoroughly at a time than handling the total feeder road network at ago would be more beneficial.

Table 25: Showing whether a few feeder road sections should be worked on thoroughly at a time other than handling the total feeder road network at ago.

Response	Frequency	Percentage
Few sections at a time	90	70.4
Total feeder road net work at ago	33	25.7
Un-decided	05	3.9
Total	128	100

Source: Primary Data (Questionnaire – Question 26(i))

As indicated in the results of table 25 above, few road sections should thoroughly be worked on at a time as shown by 70.4% respondents. To them, there is no need to work on the total road network and leave no notable good results due to little funds released to these roads, but rather select a few roads from each county and handle them thoroughly. They believed that it can take a good number of years before such sections need any maintenance/repairs as other roads are being worked upon. On the other hand, 25.7% respondents were not of that view.

They commented that a total feeder road network should be handled at ago to avoid complaints from the un-attended to road users, because all corners are full of farmers who need their produce to be sold to/bought by traders, go to markets, to enable easy accessibility to health units especially the pregnant mothers, and that the Engineering department should put to maximum use the few road equipments it has to work on all roads.

On policy issues, it was concluded that contractors be changed and invited from any part of the country. Then, as a policy recommendation, it was decided that contractors be trained first before they take on any works of feeder roads. Other respondents recommended the use of only machinery and fines be levied on those contractors who do shoddy work. The fines according to the respondents should range between 21-40% of the total contract price as a way of instilling

discipline to contractors who do not follow technical advise and do shoddy work. In line with the inadequate funding for feeder roads, it was also recommended that few sections of feeder roads according to the district priorities be thoroughly worked on first.

Other findings: Reference can be made to appendix III

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

The study was about the determinants of the state of feeder roads under PAF programme in Uganda and the case study was Kibaale District as the major objective, while the specific objectives were; examination of the amount of resources allocated to feeder roads sub sector, assessment of the development and status of feeder roads over the four years study period, exploring the challenges and problems faced in developing feeder roads and examination of policy options for enhancing the development of feeder roads.

In the same line, the following were considered as the key questions to address the above objectives i.e. What is the level of resources allocated to feeder roads? What is the status of feeder roads in the district? What are the challenges and problems encountered in developing the feeder roads? And what could be the policy recommendation(s) for enhancing the development of feeder roads?

Chapter one was concerned with the general overview of the study and highlighted the problem which prompted the researcher to carry out this study. Significance, major and specific objectives, research questions and scope of the study were also handled here under.

Chapter two covered the literature review in relation to the study objectives, the PEAP, PAF programme, whereby it was noted that PAF programme is a sub-sector in the PEAP, drives towards poverty reduction, and service delivery to the poor with a well developed plan. The PEAP on the other hand, has strategies of eradicating absolute poverty by 2017 and has priorities which PAF aims at fulfilling. It also covered road classification, road layout and road supervision.

Chapter three concerned itself with the research design and the techniques applied in selection of different methods, tools and instruments for data collection. It also shows how the target population was arrived at, the sample frames and the sample size among others.

Chapter four was about presentation and discussion of research findings on all the objectives and their related questions were analyzed. The trend of releases from the centre reflected deterioration in the amounts released to the district as evidenced in table 01. The subsequent tables analyzed the different factors that were considered to be important for this purpose and the details on the results there from were given below every table, and these results were used in drawing the recommendations shown at the end of this report.

The current chapter is concerned with the summary of the entire study, conclusions reached as a result of the findings got from the study and the recommendations drawn aimed at improvement of the rural feeder road network if adopted. Appendices have also been attached and these give supplementary information about the study.

5.1 Summary

As PEAP takes its lead in uplifting the standard of living in Uganda, it is important/vital that districts become aware of the need to have an efficient feeder road network through an effective and economic use of PAF programme.

The aim of the study as shown above was to find out the determinants of the state of feeder roads under PAF programme. Questionnaires, observations and interviewing were used as the tools to collect data which was analysed later. The study revealed that the district roads are in a bad state due to lack of road machinery equipments, inadequacy of funds and its delayed release from the centre among other factors. All these have lead to poor standards of living as all basic items in shops are hiked, and some services cannot be got. For example, if a medical personnel is posted in far deep health unit, he/she only reports and disappears to other places with a better road network on pretext that he has gone to bring his property. This implied that, the state of the district roads was directly related to the service delivery in the community. The central government was noted as to be reluctant in making follow-ups on the implementation of district road programmes, not assessing the situation on ground but rather generalizing the road conditions in the entire country.

5.2 Conclusion:

The section on the conclusion shows the major findings of the study in accordance with the study objectives that developed into the major study themes. The themes under developed for this study included the state of feeder roads Vs the increased funding, challenges faced in road works (especially feeder roads) and the policy options to improve the situation of feeder roads.

From the analysis made, the bad state of the district feeder roads was mainly caused by lack of serious supervision, inadequate funds, poor assessment by the central government and involvement of politicians as contractors, yet they are the supreme supervisors whom civil servants could not effectively follow-up for fear of conflict which can easily result into loss of their jobs. By this, the civil servants developed a feeling of the “I don’t care attitude” leaving things to take their own course since those who had the legal obligation to query management on poor results i.e. the politicians/Councilors, had in a way compromised their independence by engaging in tenders indirectly.

Given the findings above, it was concluded that there was a positive change in the state of district feeder roads compared to the past years. However, given the fact that there has been consistent increased funding every year, a lot was still left to be desired. The funding which was based on indicative planning figures that does not put into consideration the district requirements, the shoddy work coupled with corruption and to a certain extent the effects of the weather affected negatively the state of feeder roads in Kibaale District.

The findings obtained led to a conclusion that inadequacy of funds for feeder roads, type of soils, inadequate supervision by the Engineering department and inexperienced contractors were among other major challenges faced in maintenance of feeder roads in Kibaale District. Other issues included; delayed release of funds, inadequate facilitation to Engineering staff, unavailability of road equipment, failure by contractors to follow technical advise and poor monitoring by the Ministry and District authorities. All these remained un answered challenges in improving feeder road network, hence serious determinants of the state of feeder roads.

On policy issues, it was concluded that contractors be changed and invited from any part of the country. Then, as a policy recommendation, it was decided that contractors be trained first before

they take on any works of feeder roads. Other respondents recommended the use of only machinery and fines be levied on those contractors who do shoddy work. The fines according to the respondents should range between 21-40% of the total contract price as a way of instilling discipline to contractors who do not follow technical advise and do shoddy work. In line with the inadequate funding for feeder roads, it was also recommended that few sections of feeder roads according to the district priorities be thoroughly worked on first.

5.3 Recommendations

The recommendations drawn in this section have entirely come from the views/ suggestions/ findings from the respondents who took part and spared some time to answer the raised questions for purpose of this study. Therefore, if adopted will be beneficial in the improvement of the rural road network.

Below are the recommendations;

1. All feeder roads should be rehabilitated with road machinery equipment first, there after maintenance on monthly basis starts using length man system. Maintenance road workers should be introduced and road overseers re-instated both paid on monthly basis as those on central government trunk roads, and murrum should be poured and compacted throughout.
2. Regular supervision by the Engineering staff should be emphasized, taking note of any developments/anomalies cropping up so as to put on mitigating measures in time before the situation worsens. Any contractor who does not follow the technocrats' advise and ends up doing shoddy work should not be paid at all on top of being black-listed. Every stakeholder should be vigilant in seeing good work done in order to achieve good road network.
3. Technocrats in soils should be identified and carry out a study on all these roads so as to come up with their recommendations as regards suitable murrum to be used.
4. Central government should carry out a thorough assessment of all the feeder roads on ground and release adequate and timely funds but not merely sending funds basing on the reports from districts as they may not be accurate, since there was a discrepancy in the information got from the RAMPS programme data base and the district final accounts as regards what was budgeted for feeder roads and what was actually received from the centre. This should

include Environmental impact assessment.

5. The central government should take up most of the feeder roads, upgrade and widen them leaving a few for the district to manage. It should also concentrate on feeder roads as it does for trunk roads because they are also being so much utilized by heavy trucks.
6. Corruption in the award of tenders should be fought seriously, objectivity be applied in selecting successful contractors, policy makers and implementers not be involved in taking up contracts under cover of certain companies, and where possible, the law should be changed so as to have technical evaluation and district contract committees selected by annually so as to avoid influence peddling.
7. Road users should be advised/sensitized on how to use the roads and leave them un-spoilt most especially those ferrying produce and timber who normally dig ditches in the roads when stuck and leave them uncovered or else a charge be introduced payable by every loaded truck for purposes of working on such spoilt spots.
8. Contractors should be invited from outside the district to encourage competition, Sub-county authorities and the local leaders be mandated to make reports on completed works and be submitted to the district as part of intensifying on the supervision. But that role should not attract any allowances as facilitation since they will be reporting on areas where they are stationed/or their places of residence. In all cases, contractors should be experienced and have refresher trainings on new developments before commencing work.
9. The central government should endeavour to make all weather roads.
10. Bills of Quantities (B.O.Qs) should always be accessed by relevant staff especially those where road works are to be carried out so as to help in the efficiency and effectiveness of the implementation. Sign posts should also be installed on the active feeder roads so as to reduce accidents.

Suggested arrears for further research

Establishment on the effective welfare changes households might experience as a result of improved/good feeder road network system.

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APPENDIX I (Questionnaire)

**QUESTIONNAIRE ON DETERMINANTS OF THE STATE OF FEEDER ROADS
UNDER POVERTY ACTION FUNDS (PAF) PROGRAMME IN UGANDA. A CASE
STUDY OF KIBAALE DISTRICT.**

Dear Respondent,

Among many, you have been identified as a key respondent in the study on the above captioned subject matter. The study is basically for academic purposes, and also to obtain purposeful information that might contribute to improvement of both, the program management and of benefit to other users of such information.

While responding, you are requested to feel free, be open minded, honest as much as possible and please, try to answer all the questions. Whichever information obtained, will be kept with utmost confidentiality and you are NOT compelled to give your names.

I thank you in advance for accepting to take part in the study and may God bless you for that good spirit.

Instructions:

All answers are expected to be written within the space provided. Where such a space provided is not enough, a separate sheet can be used but should be attached on this questionnaire when submitting. Feel free when answering this questionnaire and please, indicate your choice by ticking from the options given or using the provided space.

Section A: Personal data

Occupation

Department

Sex Male ☐ Female ☐

Attained highest level of education

- a) Post Graduate ☐
- b) Degree ☐
- c) Diploma ☐
- d) A level ☐
- e) O level ☐
- f) Others (specify) ☐

Section B: Secondary data collection guideline questions for information to be got from Engineering and Finance Departments- Accounts section, and from the District Contracts Committee section.

The level of resources/money allocated to feeder roads.

1. How much total was budgeted for feeder roads for the last four Financial Years?
.....
2. How much total was released to the feeder roads sub-sector in the last four Financial years according to the central government releases?
.....
3. (i) Are there any feeder roads contractors who are not yet paid for the work done? Yes/No.

(ii) If yes in the above, how much is not yet paid?

.....

4. How much total was quoted by the feeder roads contractors in their applications?

.....

5. How much was actually paid to the feeder roads contractors?

.....

Primary Data

Section C: (To be filled by all respondents)

The status of feeder roads in the district.

6. The status of feeder roads is

(i) Excellent (ii) Good (iii) Fair (iv) Bad (v) Very bad

7. (i) Has there been any changes in the condition of the feeder roads? Yes/No.

(ii) If yes in (i) above, what change was it? Positive/Negative.

(iii) Give reasons for your answer in (ii) above.

.....
.....
.....
.....
.....
.....
.....

Section D: (To be filled by all respondents)

The challenges and problems encountered in developing the feeder roads.

Tick either Yes or No on each

8. Inadequate funding (Yes/No)

9. Poor soils (Yes/No)
10. Poor supervision by the engineering department staff (Yes/No)
11. Inexperienced contractors (Yes/No)
12. Delayed release of funds from the Centre (Yes/No)
13. Unskilled staff in the feeder roads field (Yes/No)
14. Lack of facilitation to the supervising staff (Yes/No)
15. Lack of equipments to work on the roads (Yes/No)
16. Failure of the Contractors to follow the advise of the technocrats from engineering department (Yes/No)
17. Contractors not advised on what to do (Yes/No)
18. Un realistic budgeting (Yes/No)
19. (i) Poor assessment by the central government on what is involved in feeder roads development (Yes/No)
- (ii) If yes in (i) above, how?

.....

.....

.....

.....

.....

.....

.....

Section E: (To be filled by all respondents)

The policy recommendation(s) for enhancing the development of feeder roads.

20. To continue using the usual contractors in each road section (Yes/No)
21. To invite contractors from outside the district as a way of encouraging competition so as to get better results (Yes/No)
22. To train contractors before they commence work (Yes/No)
23. To strictly use road machinery/plants (Yes/No)
24. To strictly use labour based methods (Yes/No)

25. (i) To impose a fine on a contractor who does shoddy work as a percentage of his contract price (Yes/No).

(ii) If Yes in (i) above, what percentage?

.....
.....

(iii) If No in (i) above, Give reasons

.....
.....
.....
.....
.....
.....

26. (i) To work on few feeder road links thoroughly at a time than handling the total feeder road net work at ago (Yes/No).

(ii) If No in (i) above, give your suggestions on what to handle first.

.....
.....
.....
.....

Section F: (To be filled by all respondents)

Recommendation (s)

27. What recommendation(s) do you make as regards improvement (if in bad shape) or maintenance of the state of feeder roads (if in good shape)?

.....
.....

END

Thanks once again.

Appendix II

Observation Check List

▪ Drainage:

- Off shoots
- head walls
- wing walls
- apron
- culverts
- bridges

▪ Road surface

- Gravel
- Gradient
- Pot holes and size
- Width of the road

▪ Speed limitation

Appendix III

General comments/views/suggestions given by the respondents in the course of data collection

- Regular supervision of feeder roads by all stakeholders as a team and adequate facilitation to the Engineering department supervising staff.
- Contractors should always follow the engineers advise or else their contracts be terminated.
- Culvert rings should always be laid whenever they are worth/due, bridges be made in swamps and the drainage system all through.
- Technocrats in soils should be identified and sent to these roads while still at the planning level, so that it can be known on how to handle which portion depending on the soils i.e. a study on the soils always to be carried out first.
- Government should send adequate and timely funds for these roads after a thorough assessment of what is actually required bearing in mind that good road network leads to high income generation resulting into increased GDP. This can also lead to timely payment of roads petty contractors.
- The central government should take up the task of working on feeder roads because the local government staff seem to be more corrupt which leads to shoddy work.
- Murram should be poured on all roads.
- Only skilled/experienced contractors should be used
- To handle all roads related works and not pot holes filling only.
- Central government should send road plants to districts to maintain these feeder roads at all times.
- The size of the roads should be widened.
- Contractors should be got from that particular Sub-county.

- A fine should be imposed on a firm for the shoddy works for the first time, but if it does shoddy work again that firm should be black listed and never to carry out any contract with the district.
- Corruption in the award of tenders should be fought first, followed by a minimum level of education for all tenderers at least S.4.
- Road contractors/labourers should be trained first before commencing work and as new developments come up in this changing world.
- Central government to concentrate on funding feeder roads while grants from other donors be put to other activities.
- The feeder roads contractors should be given instructions in time on what to be done on these roads before rains begin plus timely maintenance of feeder roads.
- Government should take over some roads and leave a few to the district.
- The Sub-county officials and local people should be mandated to monitor and make reports on the roads works being done.
- The central government should tarmac all the trunk roads and be relieved of their continued maintenance such that it may concentrate on maintenance of feeder roads only.
- Road overseers be reinstated at Sub-county level so as to ease the work of the district engineer.
- Some few road links should thoroughly be worked on as pilot roads for the start and also as a way of assessing the contractors.
- There should be objectivity in selecting contractors and not to be segregative in any form.
- The district to budget with the Sub-counties on all matters concerning feeder roads.
- To use labour based methods so that the community can have a sense of ownership in the same.

- Bridges repairs at all times. Generally, all the roads should be maintained/rounded at least 5 times a year
- If in bad shape, the locals should be involved in the maintenance while if in a fair state, only skilled personnel should be involved in the maintenance
- Government should engage employees/porters on these roads payable on monthly basis.
- Completed works should be verified/checked before payment
- Working on few roads at a time can ease supervision leading to a commendable job.
- That total road net work should be worked on because they are utilized by every body, and bringing them to the same level at a later date as those worked on prior will be too expensive.
- To engage powerful contractors with machines when the roads are in a very sorry state, and the district to continue with the maintenance when they have improved.
- Central government should distribute feeder roads resources equitably.
- To seek for more funds from donor agencies.
- Twice as much of the funds put on roads should now be released.
- Councillors and technocrats should not involve themselves in the contracts (i.e. Should not take them).
- Due to lack of follow-up by the centre, technocrats divert the funds to personal use instead of putting on roads.
- Both methods i.e. machinery and labour based methods should be used concurrently/simultaneously.
- New feeder roads be opened up.
- Environmental impact assessment be done before roads are constructed, topography and distance be considered in the course of budgeting.

- BOQs should be availed to the local officers so as to effectively carry out community supervision.
- Completion agreements be signed by chairpersons LCI wherever these roads are passing.
- Spot improvement should be done on worse off points first.
- Thorough compaction of the murram on the parts worked upon
- Prices be given to the well performing/excelling contractors
- Corners should be open wide, and/or minimized with sign posts being installed on risky/dangerous areas.
- Roads construction machines be staged at Sub-counties.
- Poor contractors should be stopped
- The central government should endeavour to make all weather roads.
- Engineering department to survey the roads before work and make recommendations on which parts to be worked upon.
- To fine contractors doing shoddy work twice as much as the value of the work not well done i.e. should first evaluate the shoddy work and then fix the amount deductible.
- Active members should be selected on the parish to village road communities and also sensitise the masses /locals on the road use. On this note, drivers should be sensitized further so as not to continue digging pit-holes in the roads during rainy season which they leave behind uncovered after getting off where they had got stuck.
- The roads are now a little bit motorable compared to the past and peasants can sale their produce because produce dealers can easily reach them on ground though a lot is still desired on these roads. There is some periodic maintenance observed. However, the district takes long to maintain them.
- The road users themselves have resorted to work on worse off portions by e.g. pot-holes

filling so as to have the roads motorable.

- Most of pot holes are being filled using mere soils instead of using murrum.
- Some road sections have been graded of late.
- Poor road opening.
- Most of the roads are not motorable currently.
- Delayed payments to contractors, unclear terms of the contract, complicated procedure of getting contracts coupled with a lot of corruption which all lead to retarded performance by the petty contractors.
- There is a negative change noted because some of the roads are now impassable. That the district should contact the local leaders to give a hand in form of organizing communal work since they are the direct beneficiaries.
- New roads were opened/rehabilitated but their maintenance is not adequate i.e. lacking.
- Culverts not properly leveled in some areas and hence don't do as expected (Shoddy work)
- The size of the road is slightly bigger than at first because vehicles can now over take each other.
- Roads are only worked upon when big visitors are coming to the district.
- Sharp corners and trees have been lessened/cut.
- Unlike in the past, time taken these days to commute from one place to another is relatively little/lower
- Continued desilting of the culverts to upgrade the drainage system has also been noted.
- Phasing out/closure of donor programmes like Irish Aid and IFAD (KDDSP) that used to argument Government of Uganda PAF funds for road works has caused a lot of detriment to the state of the district roads.

- Central Government officials don't go to the ground to find out what is happening there but just depend on reports submitted from the district (s)
- The central government simply sends money without assessing the basic requirements for these roads and the costs involved, leading to under estimating/under-rating the real amount suitable for the roads maintenance and rehabilitations.
- There is no follow-up/supervision by the officials from the centre to find out whether feeder roads policies are implemented.
- Because the central government officials don't make a follow-up to the Sub-county level, the size of the feeder roads has continued to narrow in width, and the local people are not empowered to monitor and evaluate such roads activities neither are they conversant on how feeder roads should be maintained.
- That if central government officials were to monitor on the ground, they would have already recommended all the roads to be graded and funded fully other than the labour based methods being used now.
- Labourers are not paid in time due to inadequate funding and at times, they are never paid at all.
- Decisions are merely taken at the centre without consulting/involving the road users.
- The central government officials are corrupt and that is why they simply bless the reports given by district officials as excellent and satisfactory i.e. the district officials corrupt them just as they are also corrupted by the contractors.
- That the centre thinks feeder roads are for small vehicles only yet big trucks also use them.
- There is information gap so the local people don't know which officials come on the ground i.e. whether they are from the district or the centre.
- Some contractors are after high profits and not good quality of work.
- The central government looks at trunk roads as to be major neglecting feeder roads.

- Due to none assessment by the centre on the ground, environmental impact assessment is not done on these roads.
- Government has not introduced strict rules on those doing shoddy work.
- Government does not prioritise feeder roads.
- Assessment done during the dry season when roads are relatively good yet when it rains, that is when you get the clear picture of the roads on how good/bad they are.
- Feeder roads are being used by big/heavy trucks which end-up spoiling the simple bridges put there. Therefore, small vehicles should be used on these roads for both distribution of items to the selling/buying points or to the user communities/centres.
- Some roads are done under political pressure without proper assessment.
- Because all contractors are trained first and get skills and therefore cannot do shoddy work; except, work schedule and instructions for works to be done are given late by the Engineering department staff when the rainy seasons are encroaching which rains spoil the done works and the blame is shifted to the contractors. But all this is as a result of late release of funds from the centre which puts there restrictions that works should not commence not until the funds are already credited on the district account specifically for these roads.
- Contractors have no control over nature
- Work assigned to contractors is beyond their reach.
- Total road network should be worked upon so as to avoid complaints from the users of those other roads which may remain un-attended to in case only a few are handled at a time.
- All roads should be worked on at ago so as to enable traders reach farmers who want to sell their produce in all corners, markets and also for easy accessibility to health units especially by the pregnant mothers. That this can also encourage full scale planning for all the roads.
- That in case a few sections are worked upon thoroughly by the time it comes to another quarter, even the worked on roads will have gone bad and those left out first will be

completely cut off because soil/marrum roads don't last for long.

- Political influences to have all roads worked upon.
- In case the supervisors don't involve themselves in taking contracts, they can do a good job and cover all roads at ago.
- To start working with the worse off roads first and then to those relatively better.
- The Engineering department should use the road equipments it has to work on all roads.

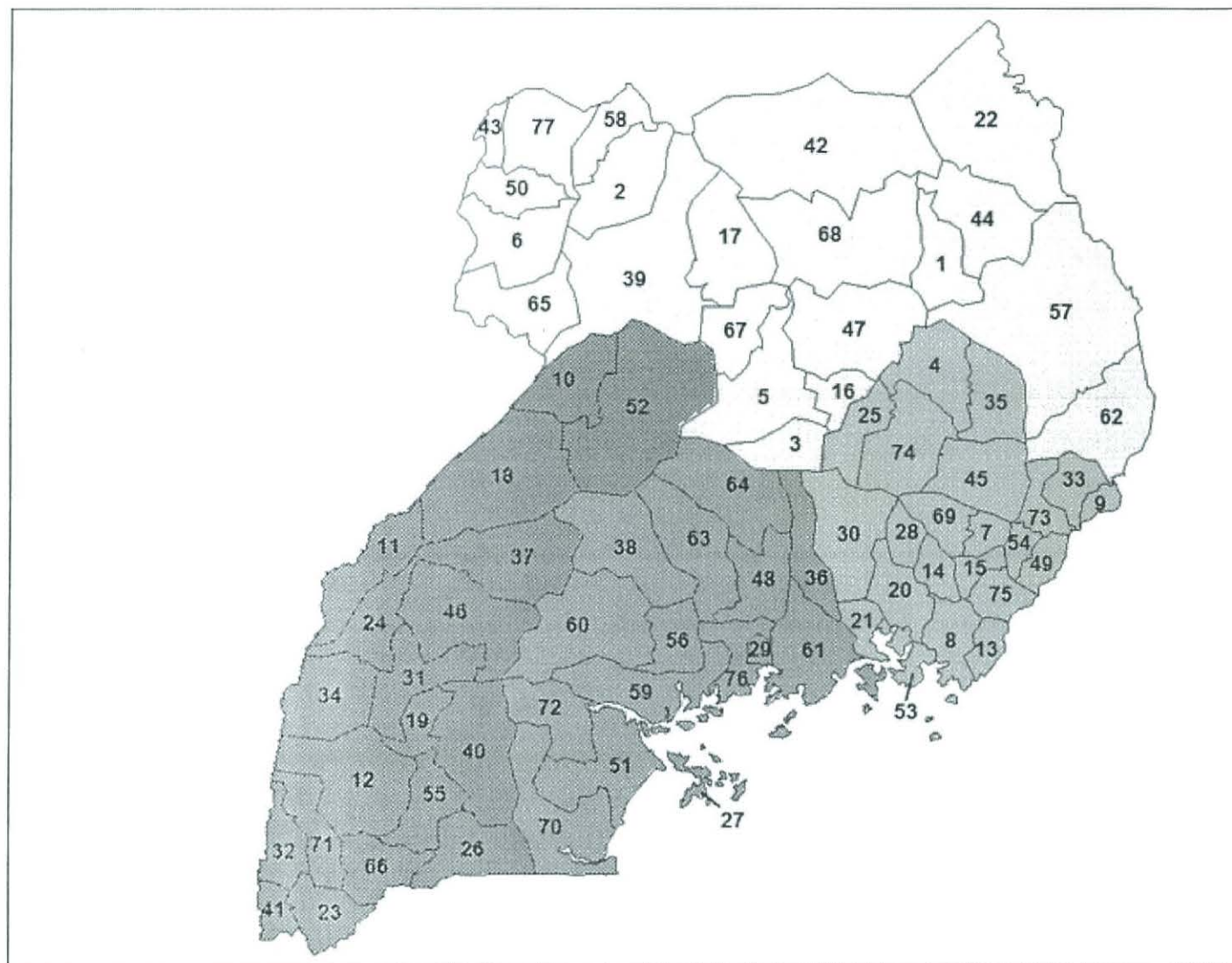
APPENDIX IV

Sampled Roads

1. Páacwa – Bugwara – Kasimbi – Kyebando – Kibaale
2. Kyebando – Kyengabi – Mugarama
3. Nyaburungi – Kikuuba - Kyengabi
4. Bwamiramira – Kikaada – Bubango
5. Mabaale – Ruzaire – Kabamba
6. Diida – Kyamasega – Kyakataba – Kyanaisoke
7. Mabaale – Burora – Rugashari – Kyakabadiima – Kyenzige
8. Kyakabadiima – Hamugyi – Rwentale – Kabyaza
9. Bukuumi – Kibijjo – Isunga
10. Nkooko – Rutooma – Mwitanzige
11. Kisiita – Mwitanzige – Nkondo
12. Kisiita – Nyabirungi – Katikara
13. Kakumiro – Nkooko – Kisiita – Nalweyo
14. Kiranzi – Kyabasara – Kiryanga – Kyakato
15. Ruzaire – Kitemba – Kiryanga
16. Nkondo – Kyamujundo – Nalweyo
17. Ruteete – Katengyi - Mpeefu

APPENDIX V

MAP OF UGANDA SHOWING THE LOCATION OF KIBAALE DISTRICT



APPENDIX VI: SHOWING NAMES OF DISTRICTS IN UGANDA PER REGION.

CENTRAL

Map	District
27	<u>Kalangala</u>
29	<u>Kampala</u>
36	<u>Kayunga</u>
38	<u>Kiboga</u>
48	<u>Luwero</u>
	<u>Lyantonde</u>
51	<u>Masaka</u>
56	<u>Mityana</u>
59	<u>Mpigi</u>
60	<u>Mubende</u>
61	<u>Mukono</u>
63	<u>Nakaseke</u>
64	<u>Nakasongola</u>

EASTERN

Map	District
4	<u>Amuria</u>
7	<u>Budaka*</u>
	<u>Bududa</u>
8	<u>Bugiri</u>
	<u>Bukedea</u>
9	<u>Bukwa</u>
13	<u>Busia</u>
14	<u>Namutumba</u>
15	<u>Butaleja</u>
20	<u>Iganga</u>
21	<u>Jinja</u>
25	<u>Kaberaido</u>
28	<u>Kaliro</u>

NORTHERN

Map	District
1	<u>Abim</u>
2	<u>Adjumani</u>
3	<u>Amolatar</u>
39	<u>Amuru</u>
5	<u>Apac</u>
6	<u>Arua</u>
16	<u>Dokolo</u>
17	<u>Gulu</u>
22	<u>Kaabong</u>
42	<u>Kitgum</u>
43	<u>Koboko</u>
44	<u>Kotido</u>
47	<u>Lira</u>

WESTERN

Map	District
10	<u>Bulisa</u>
11	<u>Bundibugyo</u>
12	<u>Bushenyi</u>
18	<u>Hoima</u>
19	<u>Ibanda</u>
26	<u>Isingiro</u>
23	<u>Kabale</u>
24	<u>Kabarole</u>
31	<u>Kamwenge</u>
32	<u>Kanungu</u>
34	<u>Kasese</u>
37	<u>Kibaale</u>
40	<u>Kiruhura</u>

70	<u>Rakai</u>
72	<u>Sembabule</u>
76	<u>Wakiso</u>

30	<u>Kamuli</u>
33	<u>Kapchorwa</u>
35	<u>Katakwi</u>
45	<u>Kumi</u>
49	<u>Manafwa</u>
53	<u>Mayuge</u>
54	<u>Mbale</u>
69	<u>Pallisa*</u>
73	<u>Sironko</u>
74	<u>Soroti</u>
75	<u>Tororo</u>

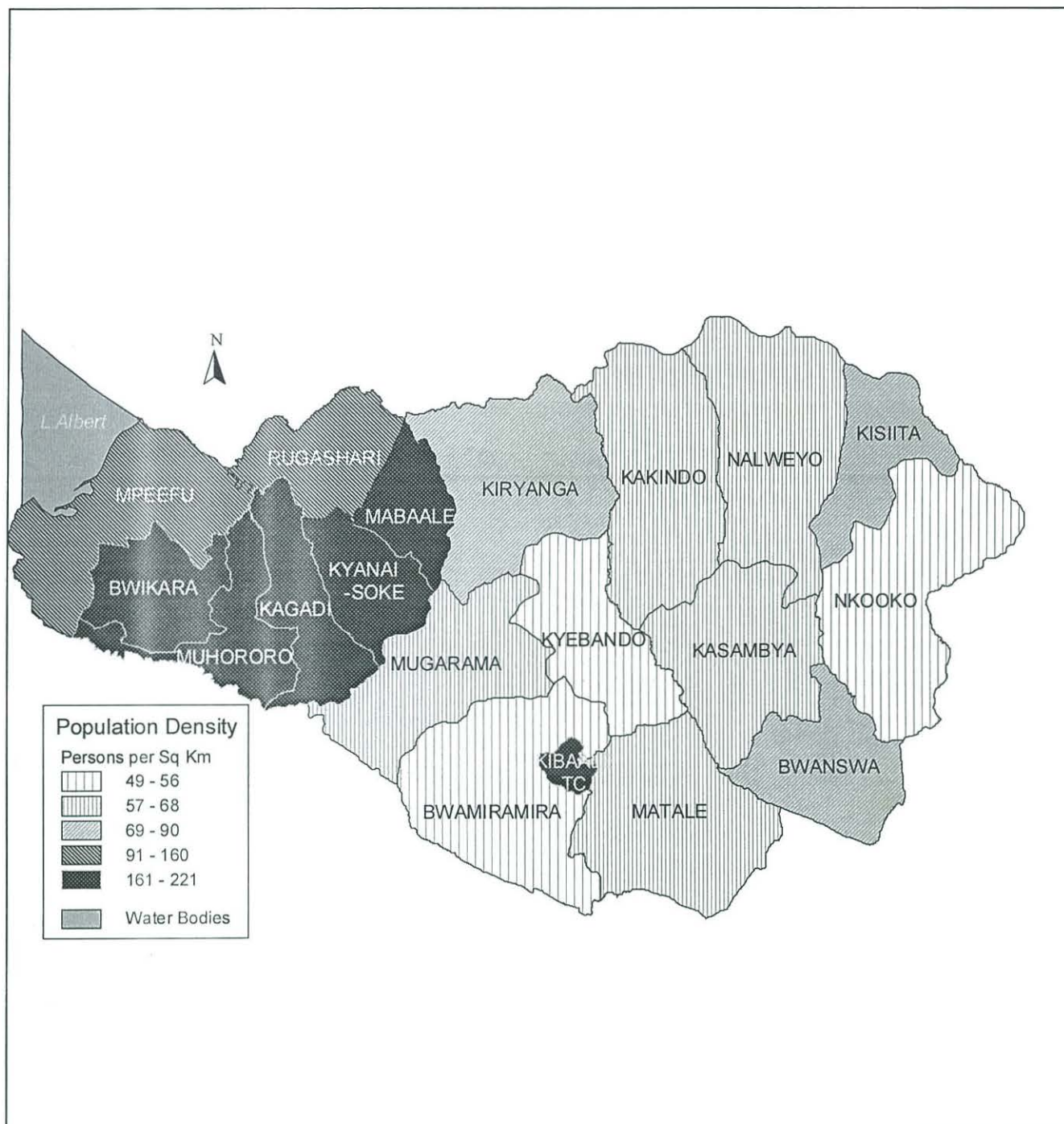
50	<u>Maracha-Terego</u>
57	<u>Moroto</u>
58	<u>Moyo</u>
62	<u>Nakapiripirit</u>
65	<u>Nebbi</u>
67	<u>Oyam</u>
68	<u>Pader</u>
77	<u>Yumbe</u>

41	<u>Kisoro</u>
46	<u>Kyenjojo</u>
52	<u>Masindi</u>
55	<u>Mbarara</u>
66	<u>Ntungamo</u>
71	<u>Rukungiri</u>

Source: wikipedia 2007

APPENDIX VII

MAP OF KIBAALE DISTRICT SHOWING POPULATION DENSITY BY SUB COUNTY



Source: Kibaale District Local Government DDP-2007-2011