

**EFFECTS OF RURAL TRANSPORT ON SOCIO-ECONOMIC
DEVELOPMENT OF RURAL DWELLERS IN SOUTH IMENTI
DISTRICT, MERU COUNTY**

BY

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DECLARATION

This project report is my own original work and has not been presented for any degree award in any other university.


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DEDICATION

I dedicate this project to my beloved wife, Rebecca and children Eric, Emily and Alex, for their understanding and support during the entire period of study.

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ABBREVIATIONS AND ACRONYMS

ADB	Accessibility Data Base
EIT	Employment Intensive Technology
FHWA	Federal High Way Administration
GNP	Gross Nation Product
IFAD	International Fund for Agricultural Development
IMT	Intermediate Means of Transport
MRP	Minor Roads Programme
NGOs	Non-Governmental Organizations
LGRs	Local Government Roads
RTS	Rural Transport Services
RARP	Rural Access Roads Programme
UNDP	United Nation Development Programme
SPSS	Statistical Package for Social Services
VPD	Vehicles Per Day

ABSTRACT

Socio-economic development and subsequent economic growth on the African continent is hampered by several limiting factors, including the lack of adequate roads infrastructure. Investment in transport infrastructure in Africa plays a significant role in stimulating development. This study sought to determine the effects of rural transport on socio-economic development of rural dwellers in South Imenti district, Meru County. The study was guided by the following objectives: to establish the effect of rural transport on sustainable Agriculture of rural dwellers; to establish the effect of rural transport on basic service provision in rural dwellers; to establish the effect of rural transport on trade development of rural dwellers; and to establish the effect of rural transport on access to opportunities of employments on rural dwellers. The research used simple random sampling procedure and then adopted descriptive research design. Further inferential analysis was used to assess the effect of multiple factors. The data was gathered from the rural dwellers and administration officers of South Imenti District, through questionnaires structured on the basis of the objectives of this study. Data required for analysis was collected from the respondents and analyzed using Statistical Packages for Social Sciences. The findings of this study were; rural transport influences positively to socio-economic development. This is guided by the responses collected from households in South Imenti. Rural transport leads to sustainable Agribusiness as access to produce, farming input and marketing is not a problem to the farmers. It also facilitates quick access to basic facilities; opening of trade opportunities and employment. The research recommends that; the government of Kenya through Ministry of Roads and transport increase funding for rural roads in all Counties and the communities to organize themselves in marketing Associations so that the Agribusiness products can be marketed to other districts since rural transport is good

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Almost a decade ago, it was widely believed that roads could catalyze rural development if there were enough good ones to ensure access to inputs and evacuate agricultural surpluses to markets. Consequently, rural transport planning directed large amounts of investment aimed at rural development towards providing roads. The failure of this strategy to make an impact on rural development in spite of massive investment, led to research efforts to understand what was actually taking place (UN Commission on Human Settlement, 1982).

The findings of several studies carried out in Africa and Asia show that people move around in rural areas for a variety of reasons which range from subsistence to socio-economic needs. The largest transport burden on households often takes place within the village, mostly required for the transport of water and firewood. This burden is often undertaken by head and hand loading by women. Footpaths and footbridges are the transport infrastructure often used by rural households; mostly on foot and occasionally with animal-drawn carts and bicycles for the economically more fortunate ones (United Nations Development Programme, 1995).

According to Edmonds, et al, (1995), availability of means of transport and of transport services condition the movement of goods into and out of communities. When facilities for basic services are difficult to reach, the time and efforts to go and get them takes away the time needed for other productive and social activities. Consequently, the household could experience labour shortages at critical times on the agriculture calendar and in other economic sectors. Lack of access not only produces isolation, it actually becomes a real constraint on productive activities and contributes to factors that cause poverty.

According to the 1995 Human Development Report of the UNDP and the 1996 World Development Report of the World Bank it was found out that in sub-Saharan Africa, population of 572millions and average GNP per capita income of US\$460, the access to health services is

54.9%, to safe water is 56% and to sanitation is only 36%. Poor access to basic services contributes to infant mortality rate of 92 per 1000 live birth and a life expectancy of 51.3 years in these countries. These access problems are even worse in rural areas of Africa where 90% of the Africa's poor lives. Only 49% of the rural population in sub-Saharan Africa has access to health services, 35% to safe water and 29% to sanitation. These figures are 78%, 73% and 59% for urban population respectively.

There is no doubt that transport is a key element in the process of economic and social development. However, it is crucial to be clear about the form in which the transport is made available - to whom, by whom and the extent that it is integrated into the development process. Since early 1980s there has been a great deal of evidence to suggest that the major investment programmes in rural roads have not achieved the hoped for increases in agricultural production and in living standards of rural population.

The UN Commission on Human Settlements (Habitat) in its 1982 reports indicated that the ability of the poor to engage in economic activities is limited by inadequate facilities and services and is generally hindered by current transport policies.

The current rural transport policies should be reformulated to reflect the actual needs and transport pattern of rural population. Thus, it is necessary to look closer at the access needs and priorities of the rural population and to develop a co-ordinate, integrated set of interventions to meet their needs.

Today roughly half of the world's population are rural dwellers of these an estimated one billion people still do not have access to reliable transport. according to the World Bank's Rural access Index. Communities in developing countries are deprived of all- weather roads, cutting them off from even the most basic social and economic services that could help them escape the poverty trap.

Isolation caused by poor access to transport constitutes one of the leading inhibitors of economic progress throughout the developing world. Rural roads provide vital access to health, education, agricultural produce, and trade and employment opportunities.

Transport is one of key sectors that play crucial roles in the effort to achieve the goals of poverty eradication and sustainable development. The link between transport and other economic and social sectors in relation to the Millennium Development Goals for Africa has been defined by the AU Summit in which targets have been set for the transport sector for each of the eight MDGs. As indicated in the African transport section of the MDGs, transport has a role in facilitating the movement of goods and services as well as in ensuring access to educational and health facilities, which in turn plays important roles in the achievement of the MDGs. Kenya, as nation ascribed to these goals, has put a lot of effort in transport sector in most of its counties.

According to the 2009 population census report, South Imenti District which is in Meru county, has a population of 179,604, and caters for a house hold of 47,197 and covers an area in square kilometers of 661.00 The transport situation in this constituency, especially in the interior rural areas, is wanting as the feeder roads connecting to main Chuka – Meru highway, are not all weather roads and are not well maintained, notwithstanding the fact that the rural population are practicing agribusiness. This study sought to investigate the effects of rural transport on socio-economic development of rural people in South Imenti Constituency.

1.2 Statement of the problem

Kenya pioneered the use of Employment Intensive Technology (EIT), and has been implementing successful employment intensive road projects since the days of the Rural Access Roads Programme (RARP) in the 1970s and the Minor Roads Programme (MRP) in the 1980s. Both programmes provided much-needed access to rural communities, created employment and helped in stimulating the local economy in almost all parts of Kenya. These two programmes were followed by the roads 2000 Maintenance concept, which was specifically aimed at dealing with the prevailing maintenance backlog covering the entire road network of Kenya. The intension of the government was to improve the socio-economic development of its people through these roads (International Road Federation, 2011).

In Imenti South District alone since the year 2000 three new roads have been opened connecting the district with other districts and have been maintained based on the information from Ministry of roads newsletters. Nevertheless no study has been carried out to determine the effects of the rural transportation on socio-economic status of the rural dwellers in Imenti South.

1.3 The Purpose of the study

The purpose of this study was to find the effects of rural transport on socio-economic development of rural dwellers in Imenti South District, Meru County.

1.4 Objectives of the Study

The specific objectives of this study included;

- i) To establish the effect of rural transport on sustainable Agriculture of rural dwellers in Imenti South District.
- ii) To determine the effect of rural transport on basic service provision to rural dwellers in Imenti South District.
- iii) To assess the effect of rural transport on trade development of rural dwellers in Imenti South District.
- iv) To examine the effect of rural transport on access to opportunities of employment of rural dwellers in Imenti South District.

1.5 Research Questions

The study was guided by the following research questions;

- i) What is the effect of rural transport on sustainable agriculture of rural dwellers in Imenti South District?
- ii) What is the effect of rural transport on basic service provision to rural dwellers in Imenti South District?
- iii) What is the effect of rural transport on trade development of rural dwellers in Imenti South District?
- iv) What is the effect of rural transport in accessing opportunities to employment among rural dwellers in Imenti South District?

1.6 Significance of the research

This study will be significant in the following ways: The findings of this study will inform the Government of Kenya on policy formulation in relation to roads and transportation management. It will also inform Imenti South District leaders on the effects of transport interventions, including road management plans. In addition the findings will enable the district road management committee and Engineers to solicit funding for road maintenance and spot improvement.

1.7 Delimitation of the Study

The study confined itself to Imenti South District and within the variables of the study which are; sustainable Agriculture, Basic service provision, growth of business enterprises or trade and accessibility to employment opportunities. The findings will be applicable to road management especially when sourcing for road maintenance funds from the government and donors.

1.8 Limitation of the Study

It was not possible to control all variables especially the confounding variables. Also it was hard to show cause and effects relationships. Also data collected was at one point in time yet in natural situations, things kept on changing on day to day basis.

The other major limitation of the study was the topic, rural transportation and socioeconomic development. Since the topic itself was very broad, it was difficult to examine all aspects of rural transportation in detail in a single study.

1.9 Assumptions of the Study

All respondents were to be co-operative and provide complete, reliable and true responses. The sample selected was to be sufficient representative of the entire research population.

1.10 Definition of significant terms

District according to this study it was a type of administrative division .

Effect means result or consequence of rural transport.

Rural refers to sparsely settled or agricultural country side.

Rural people are the persons dwelling in the sparsely settled or agricultural country side.

Socio-economic development was the process of social and economic development in a society.

Transport or transportation was the movement of people, animals and goods from one location to another. Modes of transport include air, rail, road, water, cable, pipeline, and space.

1.11 Organization of the study

The research study was organized in five chapters. The first chapter started with the background to the problem, followed by statement of the problem. In the same chapter the purpose of the study was outlined, followed by highlighting of research objectives and the research questions. Then the limitations and delimitations of the study followed. The significance of the study was also given and the chapter also concluded basic assumptions and the organization of the study

In Chapter two, the related literature review on rural transportation in relation to its effects on socio-economic development was done. This chapter was sub-divided into sub-themes which were based on effects of rural transport on socio-economic development of rural dwellers.

Chapter three covered the research methods including research design, the population which covered the study and the methods of sampling procedures. The instruments to be used in data collection and their validity and reliability were also captured in the proposal.

Chapter four covered data analysis, presentation and interpretation while Chapter five dealt with summary of findings, discussions, conclusions and recommendations of the study. References to the study and all relevant appendixes are placed after chapter five of the research report.

CHAPTER TWO

LITERATURE REVIEW

Introduction

2.1 Introduction

This chapter presented literature on rural transport and its effects on socio-economic development. This chapter covers Global Perspective of Transportation Issues in Rural Areas; Elements of Rural Transport; Effects of rural transport on Sustainable Agriculture; Effects of rural transport on basic service provision and general life; Effects of rural transport on growth of trade development; Effects of rural transport in accessing opportunities to employment; Theoretical framework; and Conceptual framework.

2.2 Global Perspective of Transportation issues in Rural Area

Many governments and donor efforts to improve access to rural transport have focused on expanding road networks, giving little attention to sustainability, the development of transport means and services on the roads, or the needs and views of transport users, especially the rural poor. As a result, despite massive spending on road construction, the interventions have not met the transport needs of rural women and men for a wide variety of subsistence, social, and economic activities to maximize their livelihoods. Moreover, the market has not provided transport services to areas with low demand and to the poorest and least mobile segments of the community. Many rural people, especially women, walk long distances every day carrying heavy loads of water, firewood, and grains, as well as agricultural produce and goods for marketing. (Riverson and Carapetis 1991; Malmberg Calvo 1994b; Dawson and Barwell 1993; Connerley and Schroeder 1996; Howe 1997; Edmonds 1998; Ellis and Hine 1998; Starkey 2001b).

In recent years, however, recognition has been growing that without an integrated approach to transport infrastructure and services, investment in transport is unlikely to bring commensurate economic and social benefits. As a result, countries in Africa, Asia, and Latin America are giving more attention to smaller roads, paths, and tracks and to the use of intermediate means of transport.

Several studies by Riverson and Carapetis 1991; Malmberg Calvo 1994b; Dawson and Barwell 1993; Connerley and Schroeder 1996; Howe 1997; Edmonds 1998; Ellis and Hine 1998; Starkey 2001b have stressed the importance of local transport solutions, with complementary infrastructure and transport services. Governments in developing countries are being encouraged to create favorable policies and operating environments, enabling the private sector and nongovernmental organizations (NGOs) to play important roles in new rural transport initiatives. From the global perspective the researcher will further compare the Rural American transportation and African situation before narrowing to Kenya.

2.2.1 Transportation Issues in Rural America

The issues facing rural transportation are many and complex in Rural America. Some can be classified as *demand-oriented* issues that concern the needs and expectations of the users of these systems; many others are *supply-oriented* issues that relate to the availability, performance and capacity of transportation systems. Together these provide a picture of the adequacy of the system, and some indications of where payoffs from investments are likely to be the greatest. The main sources for these issues are the Federal Highway Administration (2001), Stommes and Brown (2002), and Twaddell and Emerine (2007).

Expectations of the nation's public transportation system are high, and certainly no less so in rural America. These are reflected in the Federal Highway Administration's (FHWA) own vision:

"The quality of life and economy in rural America depends on an efficient, effective, comprehensive, and coordinated multimodal transportation system that provides choices for the movement of people and goods and allows quick transfers between modes when and where they are needed".

The need to maintain transportation linkages between rural and urban area is very important to the economy, public health and safety, and the social structure of rural America. (FHWA, 2001)

In practice, demands and expectations differ according to the social, economic, and geographic circumstances of the user. People with low-incomes, the elderly, and those living with disabilities in rural communities need transport options that allow them to access job and

educational opportunities, medical facilities, and normal day-to-day interaction with friends and family. Yet Federal statistics show that more than 1.6 million rural households do not have access to a car, and that households in the lowest 20 percentile income bracket spent 42 percent of income on transportation. Moreover, 38 percent of rural residents live in areas with no public transport being (FHWA, 2001).

Research commissioned by the Transportation Research Board (Twaddell and Emerine, 2007), which involved focus groups, surveys, and case studies, confirmed that accessibility to jobs, shops, services, education, and healthcare was the number one issue for rural communities. However, there were geographical differences depending on the proximity to or remoteness from large urban centers. Communities in exurban areas are primarily concerned with access to jobs in adjacent cities; tourist destination communities focus on welcoming visitors and opening up access to tourist attractions; communities engaged in agriculture, mining or forestry tend to be more interested in access to markets, and in attracting new economic activity to diversify their economies.

The same research also highlighted that in areas of growth, demands for improved access were tempered by some of the possible consequences, such as encroachment on agricultural land, scenic views and cultural or historic resources, as well as pollution, sprawl, changing community character and values, loss of sense of place, and competition for traditional, small businesses from large chain stores being (FHWA, 2001).

As noted by Stommes and Brown (2002), “In the last 25 years, transportation in rural America has been transformed by deregulation, devolution of Federal responsibilities to state and local governments, and traffic growth created by the booming economy of the 1990s. All forms of rural transportation – highways, passenger service (transit, intercity bus, and passenger rail service), trucking, inland waterways, rail freight service, and passenger air service – have been affected”

2.2.2 Rural Transport in Africa

Transport Research Laboratory (2002), reported that roads in rural Africa, in particular gravel roads are vital to the socio-economic wellbeing of local communities. They provide access to schools, clinics, jobs, markets, neighboring communities, and a link to the higher order road network. Therefore, whilst these roads tend to carry relatively low levels of traffic, they play a

very important role in the development of rural areas, and it is vital that they remain open to traffic throughout the year, including the wet season. One possible method of achieving this is to seal the gravel running surface with a thin bituminous surfacing.

Socio-economic development and subsequent economic growth on the African continent is hampered by several limiting factors, including the lack of adequate roads infrastructure. Investment in transport infrastructure in Africa plays a significant role in stimulating development.

Rural communities in Africa constitutes the larger percentage of the population whose information and developmental needs are not adequately met and consequently they have not been able to productively participate in the development process and enjoy the benefits thereof (Chester, and Neelameghan, 2006). Equity and justice requires that any programme for socio-economic development, whether general or in a specific sector, should cover and benefit all sections of the society, irrespective of race, caste, colour, religion, culture and other social, economic or political differences.

For long, history has shown that rural communities' in Africa have suffered from not enjoying any meaningful development largely because of policy implementation gap artificially created by the African governments and leaders. The consequence of these neglect resulted in rural communities lacking access to basic needs such as water, food, education, health care, sanitation, information and security, leading to low life expectancy and high infant mortality (Chester, and Neelameghan, 2006). These conditions, considered harsh by the majority of the rural dwellers, which result to their massive migration into urban areas to look for greener pasture, and often in search of formal employment, as the only option for survival.

According to Hine, (2004), rural transport depends on appropriate infrastructure, where rural infrastructure consists mainly of rural roads, tracks, trails and footpaths. These may vary in quality, depending on weather, season, construction and maintenance. As rural households, and in particular African women, spend a large amount of time and effort on transport activities to fulfill their basic needs, they are very often severely hampered by the lack of an adequate rural

roads network. As a result of this significant limitations of growth and development of rural communities in Africa have been experienced in the past, and are also being experienced today.

Hine (2004), added that poverty is very often far worse in Africa rural areas than in urban centers, as a result of lack of integration with urban centers due to lack of adequate accessibility and mobility, and local roads and tracks are often impassable, thereby making it very difficult and in some cases nearly impossible for rural families to have access to the local rural economy. Because rural communities could potentially play a considerable role in the economic growth and development of a country, and also for purposes of own socio-economic growth and development, it is important that investment in rural roads be supported to provide sustainable rural roads infrastructure network over the long term (Hine, 2004).

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Patterns of transport demand and supply are often linked to population density and income levels in three broad categories. The first is low transport density in low-income areas, with few motorized vehicles or intermediate means of transport. A vicious circle of insufficient transport, users, and services impedes development. Such patterns are found in remote rural areas in Sub-Saharan Africa, Asia, and Latin America (Riverson and Carapetis, 1991).

The second category has higher transport density in low-to medium-income areas and is associated with medium to high population density, irrigated agriculture, cash crops, efficient marketing systems, and nonagricultural employment. In such areas transport services have achieved a critical mass, making it easy to buy and maintain various means of transport. Such patterns are found in higher-income rural and periurban Sub-Saharan and North Africa, much of rural South and Southeast Asia, and some rural areas in Latin America (Riverson and Carapetis, 1991).

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The third category has low to medium transport density in high-income rural areas. Transport infrastructure is mostly good, and people use motorized transport regularly to go to work, clinics and hospitals, and markets; to visit friends and relatives; and to participate in social events and religious functions. Such patterns are found in periurban areas around the world and in rural

areas in the better-off countries of the Americas, Asia, Australasia, and Europe (Riverson and Carapetis, 1991).

Rural transportation in America and that of Africa has a major difference as shown from the above literature review. In America which gives the picture of developed countries transportation is classified in terms of demand-orientation and supply-oriented. While in Africa, patterns of transport demand and supply are often linked to population density and income.

2.3 Elements of rural transport

In general, rural transport can be described in three integral elements. These are Rural Transport services (RTS) and Intermediate Means of Transport (IMT), Location and Quality of facilities, Rural Transport infrastructure.

2.3.1 Rural Transport services (RTS) and Intermediate Means of Transport (IMT)

Donnges, et al, 2007 said that the availability and affordability of rural transport services and intermediate means of transport are very crucial; to rural development. The single pick-up truck that arrives once a week with essential supplies for health center and school, as well as agricultural inputs, can be of immeasurable importance to a local community.

Successful approaches to improving transport services must deal with issues related to low population density and transport demand in rural areas. They should be cost effective and use flexible technology. Few poor rural dwellers own IMT such as bicycles and animal drawn carts, let alone motorized means of transport (Donnges, et al, 2007). Most of the rural population walk and carry their loads, while the slightly better-off make use of IMT and RTS for the transportation of their products and themselves. For distances up to five Kilometers and even as far as to 20 Kilometers in some circumstances, walking is by far the most common mode of transportation in rural areas of developing countries. Where RTS are provided they usually consist of (a) privately provided transport services often pick-ups of both passengers and freight and (b) for hire non-motorized services such as bicycles, rickshaws, donkey carts, and so forth (Donnges, et al, 2007).

Transport services between villages, market hubs and district centers in many developing countries are provided by 'rural taxis' (minibuses, 4x4s, pickups) and intermediate means of

transport (motorcycles, bicycles, animals). Motorcycles are increasingly important. They are now the most numerous vehicles on some rural spokes in Colombia, Indonesia, Nepal and Timor-Leste. Motorcycles can operate on poor roads, passing road blocks caused by mud, water or landslides. Rural motorcycle taxis carry men, women and children, and their goods, to link poorly served villages to conventional transport services on main roads (Starkey, 2008). Motorcycle taxis in rural communities benefit women, children and disadvantaged people through emergency and routine transport to health care and other services. Motorcycle taxi passenger fares and freight tariffs are significantly higher per kilometre than rural taxis (Starkey, 2008). Their comparative advantage is their availability and flexibility as they transport passengers immediately to their destinations.

Starkey (2008) conclude that the profitability of motorcycle services led to similar private financing systems in Cameroon, Colombia, Rwanda and Tanzania. These systems allow all to benefit – the owners (often urban-based traders and civil servants), the operators (who rent the motorcycles), the passengers and the support services. This creates a critical mass and builds the momentum for rapid adoption of motorcycles and supporting services. The funding system allows private urban capital to fund rural transport improvements.

Starkey (2008) further noted that motorized three-wheelers also benefit rural communities, although most provide urban and peri-urban transport. They have greater load-carrying capacity than motorcycles and are safer (particularly when transporting more than one passenger). They are not, however, as maneuverable as motorcycles for crossing rivers or skirting landslides. In some countries, including Colombia and Cambodia, motorcycles with trailers (four wheels in total) provide transport services but these are rare compared to motorcycle and three-wheeler services.

As noted from the above literature, the RTS and IMT in Kenya and specifically South Imenti are quite similar. The rural dwellers who can afford use motorcycles, bicycles and taxis to commute from one point to another, while the others walk to the market and other places to access their basic needs since the cost of transport is high.

2.3.2 Location and Quality of facilities

The distance from households to facilities such as wells, forests, grinding mills, schools, and

health centers determine the amount of time rural dwellers spend on transport activities. Numerous studies on rural transport have shown that rural households and particularly women spend a substantial amount of time and effort on transport activities (Barwell, 1996). The bulk of these efforts are required for domestic subsistence activities, especially collection of water and fire wood, and trips to grinding mills. In view of planners, this time is unproductive and wasted, and drains on potentially productive labor—the principle economic resource for most rural households (Geoff, 1998). Therefore improved quality and better locations of facilities are important to consider when examining alternative access improvements.

Since the majority of time rural households spend on transport for domestic activities, the most effective transport-reducing interventions are usually related to better provision of water (such as well construction) and energy-supply facilities and the provision of grinding mills near households. Most countries have policies of providing primary social services (for example primary schools and dispensaries) at the village level, while secondary level units are provided at more central places. For social services, improving quality is often a more serious concern than improving location (World Bank, 2001).

The researcher is in agreement with what World Bank, (2001) concluded. The issue in South Imenti District is more on improving both quality and the location of the facilities. This is because the basic facilities such as clinics do not have all the facilities and the rural dwellers have to travel close to 15 to 30 km to access better medical facilities such as Chogoria Hospital in Chogoria, St. Ann Nursing home in Igoji, St. Consolata Hospital at Nkubu among others.

2.3.3 Rural Transport infrastructure

Rural transport infrastructure (RTI) is the rural road, track and path network on which the rural population performs its transport activities, which includes walking, transport by non-motorized and motorized vehicles and haulage and transport of people and animals. RTI includes the intra- and near- village transport network, as well as the infrastructure that provides access to higher levels of the road network (Donnges, Edmonds, Johannessen, 2007).

In many developing countries, rural transport infrastructure—the local roads, tracks, footpaths, and bridges used to access farms, markets, water supplies, schools, and clinics—is often in poor

condition for some or all of the year. Transport services, both large-scale motorized means such as trucks, buses, pickups, and cars, and intermediate means such as handcarts, bicycles, motorcycles, and animal-drawn carts, are often inadequate and too expensive for rural inhabitants (Connerley and Schroeder, 1996). In many areas village transport primarily means people walking and carrying. While cost constrains the use of transport services, a lack of concentrated demand constrains the development of cheaper, more efficient services. Improving rural mobility to reduce poverty thus requires a combination of appropriate transport infrastructure and better transport services using affordable means of transport (Connerley and Schroeder, 1996).

According to Barwell, (1996), efficient rural transport systems involve complementary large- and small-scale transport modes. Intermediate means of transport are important for on-farm, within-village and village-to market transport, and short trips within cities and peri-urban areas. Larger motorized vehicles are needed on routes with high demand, such as rural-urban links. Trucks and buses depend on local feeder transport for consolidation and dispersal of passengers and goods, notably transport hubs (markets, village terminals, and truck parks).

According to World Bank technical paper No. 496, 1998 there is a growing body of evidence that rural transport infrastructure (RTI) is an essential, but not sufficient ingredient of rural development and sustained poverty reduction. Additional building blocks for rural development include complementary public and private investment, such as water and energy supply, productive activities and social and economic services.

The majority of rural transport infrastructure in developing countries carries traffic of less than 50 motorized four-wheeled vehicles per day (VPD) and often a substantial number of Intermediate Means of Transport (IMT), such as bicycles and animals drawn carts. The appropriate standard for these are single-lane, spot improved earth or gravel roads provided with low cost drainage structures such as drifts and single lane bridges. The spot improvement approach is the key to the least cost-design (World Bank, 1998).

Establishing the priorities of rural transport infrastructure interventions requires a selection process of all combination of screening and ranking procedures. Screening is carried out, for

example through targeting of disadvantaged communities based on poverty indexes or elimination of low priority links from the list according to agreed criteria. The balance is then ranked according to priority (World Bank, 1998).

RTI is the local access infrastructure that is normally owned by local governments and communities. Local government roads usually have formally defined ownership arrangement. Community RTI is usually undesignated or not part of the formally recognized transport network (Donnges, et al, 2007).

In the absence of a respective legal framework, community RTI belongs to communities, who take responsibility for their maintenance; however the capacity of the community to own and take care of RTI is limited usually to the intra- and near-village network and to short links to the main road networks (Donnges, et al, 2007).

International Road Federation (2011) noted that investment on infrastructure development can stimulate growth by injecting needed cash into local economy and creating employment. Infrastructure investment in Kenya is being increasingly used to address social imbalances and create opportunities for historically disadvantaged community groups and as an interim employment-based social protection mechanism. This is through Employment Intensive Technology (EIT), which involves reorientation of public sector expenditure towards infrastructure such as road. The other maintenance programme that Kenya has employed is Roads 2000 maintenance concept. Roads 2000 maintenance programme represents the country's principal implementation strategy for road maintenance. This concept has since been adopted in vision 2030 national development policy and acknowledged as a vehicle for employment creation and poverty reduction, particularly in relation to road infrastructure delivery (International Road Federation (IRF), 2011).

The researcher is interested in investigating on the effects of rural transport on socio-economic development of rural people in South Imenti district, realizing that the government of Kenya is actively putting focusing on transport issues.

2.4.0 Effects of Rural Transport on Social Economic Development of Rural Dwellers

Investment in transport sector affects agriculture, basic service provision, trade and development and accessing of employment opportunities.

2.4.1 Rural Transport and Sustainable Agriculture

Despite the fact that the Millennium Development Goals (MDGs) failed to explicitly refer to transport, a wealth of evidence underlines transport's potential as a key catalyst in the delivery of MDGs. (Czuczman, IFRTD, 2008). Unfortunately, as bilateral donors have shifted their priorities in line with the MDGs, investment in transport has decreased and with it the potential for human and economic development achievements that transport can bring. Evidence suggests that lack of investment has led to large road focused projects being favored over broader initiatives more likely to benefit the poor. (Werner, Czuczman, IFRTD, 2008).

Kenya like other Sub-Saharan Countries depends heavily on agricultural sector therefore the growth and development of the sector is crucial for faster socio-economic development. The sector contributes 26% the GDP and further 27% through linkage with other sectors. About 80% of the population live in the rural areas and depend mainly on agriculture and natural resources for their livelihood. Furthermore 87% of all poor households live in rural areas where their main activities are anchored in agriculture, environment and natural resources. It is widely recognized that sustainable agricultural development is an engine to economic growth and in Low Income Countries (including almost all countries in Sub Saharan Africa) agriculture accounts for an average of 32 percent of growth in Gross Domestic Product. (*World Bank, FAO, IFAD, 2008*)

Transport plays a critical role in achieving sustainable agricultural development, however, the need to foster appropriate and sustainable transport solutions and address issues of accessibility and mobility to reach this goal, is frequently overlooked. Lack of physical access to markets, agricultural inputs and affordable modes of transport can dramatically inhibit the agricultural productivity of small scale and isolated farmers. This leads to poverty, insecure livelihoods and limitations to the cumulative effects of socio-economic development and economic growth, through sub-regional, regional, national and international trade.

Communities are often endowed with highly productive crops; yet high transport costs and exploitation by middlemen in a poorly structured and commercialized sector limit income generation and exacerbate poverty. Appropriate rural transport interventions can greatly improve the agricultural productivity of individuals, families and communities, resulting in poverty reduction, improved livelihood security and human development. In this way rural transport interventions can make a vital contribution to sustainable and equitable socioeconomic development. (World Bank, IFAD, FAO. 2008).

The specific transport needs of vulnerable groups must be taken into account if rural transport interventions are to support sustainable agricultural development and economic growth. In Low Income Countries women make up a substantial majority of the agricultural work force, produce most of the food that is consumed locally and are the principal agents in food security and household welfare in rural areas. (World Bank, IFAD, FAO. 2008).

As seen from the above literature if rural roads are well developed, then there would be sustainable agriculture. Farming inputs would be able to reach the rural dwellers with ease and at reasonable cost. On the other hand the farmers would be able to market their products more than when rural roads are poorly maintained. The researcher will investigate the effects of rural roads on agricultural production in South Imenti District.

2.4.2 Rural Transport and Basic Service Provisions

ADB, (2002b) noted that a well-functioning transportation system will increase safety and convenience, reduce environmental impacts, and improve access to public and private services (education, health, entertainment, retail, government). It can also contribute to healthy lifestyles by encouraging walking, biking, and other outdoor activities.

Access to basic facilities can often be made easier by improving paths or water crossings which already exist, where these are close to the rural population. Intermediate means of transport (IMT) such as bicycles and carts, which can be used on rural paths, are often a useful means to eliminate the length of travelling time for all basic needs. However, Dawson and Barwell (1993) have highlighted 'the limited availability of IMTs (especially to women) and their technical unsuitability for collection of water from many natural sources. Using IMTs can reduce the

burden of firewood collection, but there is a significant risk that this will exacerbate deforestation by encouraging increased consumption.

Rural transport depends on appropriate infrastructure, where rural infrastructure consists mainly of rural roads, tracks, trails and footpaths. These may vary in quality, depending on weather, season, construction and maintenance. As rural households, and in particular women, spend a large amount of time and effort on transport activities to fulfill their basic needs, they are very often severely hampered by the lack of an adequate rural roads network. As a result of this significant limitations of growth and development of rural communities have been experienced in the past, and are also being experienced today. Poverty is very often far worse in rural areas than in urban centers, as a result of lack of integration with urban centers due to lack of adequate accessibility and mobility, and local roads and tracks are often impassable, thereby proving it very difficult and in some cases nearly impossible for rural families to have access to the local rural economy (World Bank, 2000).

Basic service provision for poor rural people is not only a fundamental human right but is essential to achieving equitable and sustainable socio-economic development and economic growth. The benefits of improved access to water, health, and education and sanitation services are multifaceted and cumulative. Improved access to these services not only results directly in human development and improved quality of lives, but also enhances productivity that in turn serves to further facilitate human development. For example, increased income generating opportunities brought about by improved education; increased opportunities to engage in productive activities brought about by a reduction in female time wastage and increased productivity as a result of improved health. Research points to findings in a number of facets of quality of life as outlined below.

Attendance levels at schools are affected by the lack of access to schools – both for pupils and teachers. Teachers are not attracted because of the remoteness and associated difficulties of many poor areas. A study of Zambia (Hine, et al, 1998) found “examples.... where the construction of a road bridge enabled school children to get to school all through the year where previously this was not the case [due to the wet season]”. The difficulty of collecting water and wood also

affected girls disproportionately, as women bear most of the responsibility for these activities in many societies studied. Collecting basic needs can take up to 25% of every day, and this will often take priority over girls' education.

Rural residents travel greater distances to access medical care. Spatial inequalities in rural health care are in part a function of transportation challenges and limited options for rural residents. The availability of public transport is critical for the elderly, people with disabilities and those on low incomes (Starkey, 2008). Lack of options for travel on foot or bike in dispersed settlements contributes to obesity in rural youth; conversely more transport options may reduce health care costs.

A study in Kenya (Airey and Cundill, 1998) showed that health provision was an overriding concern for groups of all income levels. The study area was a 50km road linking two regional centers, one of which had a good hospital. Analysis of the purpose of people's use of the road showed a robust correlation between income and journey frequency, except in the case of health. The pattern seemed to be that once lower-income groups began to use the hospital, they did not use it any less (during the economic downturn which occurred during the second part of the study). Instead, they devoted larger proportions of their income to it. Better roads also increase the ease of use of mobile health centers. Many rural populations are extremely scattered, and if one health centre was provided for a district it would still be many miles from many villages. Mobile health centers can get round this problem.

World Bank, (1996) noted that distances to health services are limited, inappropriate and expensive. Transport services should compromise factors that are conducive to good maternal and child health care. And long slow journeys act as a deterrent to healthcare seeking behavior by enforcing breaks in subsistence activities and loss of wages. The specific transport needs of vulnerable groups must be taken into account if rural transport interventions are to effectively improve accessibility to basic services. Prioritizing Gender appropriate interventions aimed at improving physical access to services such as water, education and health services can directly achieve human development benefits, but also have the important effect of reducing the time

poverty of women and girls, and in so doing, allow them to extend their engagement in productive activities and spend more time using services.

In addition, Gender considerations in the planning and implementation of transport interventions must take into account the fact that the nature of rural transport infrastructure, and modes of transport and transport services available, can also significantly determine women's physical accessibility to basic services. For example, use of certain public transport services, can render women and girls susceptible to sexual harassment and abuse, leading to avoidance of these methods of transportation and the benefits they can bring. (World Bank, 1996).

Experience from many countries has shown that girl's school enrollment is dependent on the transport and infrastructure available. A survey of a rural roads improvement program in four areas in Morocco found that women and girls especially benefit from providing all-weather road access. Not only did the better roads make delivery of butane more affordable and reduce the need for women to collect firewood, freeing up as much as two hours daily, but the new roads brought about an increase in the number of girls enrolled in primary school. The new roads made travel to school safer and encouraged parents to send their daughters to school. Primary school education enrolments in the study areas reached 68 percent, compared to 28 percent prior to the improvements, and the enrolment of girls' more than trebled (World Bank, 1996).

Accessibility is a function of transportation infrastructure, land use, individual needs and preferences, and time. Rural public transit is important to the young, elderly, low income and disabled with few alternatives. Communications technology can provide an alternative means of achieving accessibility through telemedicine and distance learning. Improved transportation increases accessibility for rural residents to urban employment and amenities, while at the same time making rural areas attractive to urbanites. This in turn increases population and traffic with the possibility that an area's basic attractiveness is undermined. (Stommes and Brown, 2002).

Driving in rural areas is more dangerous than elsewhere – a function of speed, lower seat belt use, older cars, heavier vehicles, and poor road design and conditions. Improvements to design and

enforcement, and the creation of travel options can have a big impact on rural quality of life (Donnges, et al, 2007).

Costs of transportation are higher for rural residents, a function of longer distances traveled to work and other activities, and the use of less fuel efficient vehicles. A lack of options means that higher fuel costs adversely impact family budgets. The poorer the family and county, the higher the proportion of income spent on transportation (Starkey, 2008). Rural poor will disproportionately bear the costs of carbon taxes, fuel standards and other measures to reduce greenhouse emissions.

2.4.3 Rural Transportation on Trade Development

The main effect of rural transport development is to bring the market to rural populations. However, by making goods more easily available it may cut down on the comparative advantage achieved if villagers trade solely amongst one another. It should be borne in mind that greater involvement in the cash economy is not necessarily uniformly beneficial to rural livelihoods (Ellis, 1997).

At one time development plans assumed that the only activity of the rural poor was agriculture, and development was therefore to consist solely of trying to improve agricultural performance, including access to local markets by motorized transport. These plans failed to appreciate the diversity of economic activities of the rural poor. The majority supplement their agricultural income with such activities as basket making, cash crops, piece-work, fish-trading and other activities. All these benefit from easier access to local towns and cities. The Ellis (1997) study of Kenya showed that families living closer to the main road made more use of the road and were better off on average than those who did not live near the road.

Provision of regular motorized transport enables quicker transport of more goods to urban markets, with marginal savings on transport costs. The Kenya study (Airey and Cundill, 1998) showed that the road improvement led to greater competition and falling fares on privately-provided bus/goods transport services. In the Zambia study (Hine et al, 1998), passenger travel was negligible due to the extreme remoteness of the region and the poor road system. Of more

concern was the ability of a regular goods transport service to take large quantities of goods to be sold in towns.

Efficient rural transport systems involve complementary large- and small-scale transport modes. Intermediate means of transport are important for on-farm, within-village and village-to market transport, and short trips within cities and periurban areas. Larger motorized vehicles are needed on routes with high demand, such as rural-urban links. Trucks and buses depend on local feeder transport for consolidation and dispersal of passengers and goods, notably transport hubs (markets, village terminals, and truck parks). This way trade is enhanced and sustained as small and large entrepreneurs move from the villages to the markets with improved rural transport.

2.4.4 Rural Transportation in Accessing Employment Opportunities

The development of intermediate means of transport services is viewed as a bolster to the growth of the private sector, which consists of manufacturers of transport equipment (carts, spares for bicycles among others). It's therefore considered that affordable transport technology would foster a multiplier effect in both the urban and rural economies and thus alleviate poverty through on-farm and off-farm employment creation. Farmers would be able to carry more loads of farm products to wider markets using carts, rickshaws or bicycles than if they were to carry on their heads. Using standards for motorized roads, intermediate means of transport paths are usually narrower and do not require heavy machinery with associated costs to build, but merely labour based methods which could equally employ local labour in the process (World Bank, 1988).

Youth employment is of critical concern to almost every country in the world. While the developed world have some strategies to cushion youth against unemployment, the developing and under developed world are struggling with the impact of youth unemployment. The worst hit is the Sub-Saharan Africa where youth unemployment rate is far beyond economic growth. Currently it stands at 21% according to ILO estimate. With no proper long-term regional strategy to address the situation, it is expected to escalate. In order to cut down the employment problem, the government has to strategize by all means to link people from the rural and urban thus making the rural dwellers have more employment opportunities. This can be done by improvement of rural transport.

According to TRL (2001), it is now widely recognized that there exists an economic, social and environmental interdependence between urban and rural areas and a need for balanced and mutually supportive approach to development of the two areas. The discrete consideration of rural development as completely distinct from urban development is no longer valid. A new perspective, referred to as the *rural-urban linkage development approach*, is increasingly becoming the accepted approach. Rural-urban linkage generally refers to the growing flow of public and private capital, people (migration and commuting) and goods (trade) between urban and rural areas. It is important to add to these the flow of ideas, the flow of information and the flow of diffusion of innovation.

Adequate infrastructure such as transportation, communication, energy and basic services is the backbone of the urban-rural development linkage approach. There is a positive relationship between adequacy of transportation infrastructure, ease of mobility and access to employment and enhancement of income. Adequate investments in infrastructure, particularly transportation infrastructure, also improve rural productivity and allow access to markets, jobs and public service by both men and women (Bamberger, and Davis, , 2001).

Urban access tends also to lead to more opportunities for paid work, greater diversity of purchases of consumer goods (necessities as well as luxuries) and thus more involvement in the cash economy. This will inevitably have a cultural as well as an economic effect on rural villages, perhaps raising economic expectations. Increased involvement in the cash economy may also improve access to credit, which is a useful tool for encouraging small enterprise (Howe and Davis, 2002).

2.5 Theoretical Framework

The theoretical foundation underlying this study is that provision or improvement of transport services results in reduction of transport cost and/or travel time which in turn lead to increased production. Improved transport, therefore, promotes social and economic development by increasing mobility and improving physical access to resources and markets (IFAD, 2001).

Fromm (1965), World Bank (1994) and SACTRA (2000) treat transport as one of the factors of

production. It is universally accepted that the provision or improvement of transport results in reduction of transport costs. As transport cost decreases, the factor prices fall resulting in the increased demand for input use or more output supply according to microeconomic theory (Varian, 1992, 1999). Bhalla (2000) has similar argument. He goes ahead by saying that the marginal cost decreases as a result of improved transportation. IFAD (2001), HMGN (1997) and World Bank (2001) emphasize the role of rural transport for socioeconomic development. There exists a massive theoretical literature about transport and development (Fromm, 1965; Forkenbrock, 1990; World Bank, 2001; Baum and Korte, 2001, Sadoulet and de Janvry, 1995; Kessides, 1993; Banister and Berechman, 2000; Berechman, 2001; Vickerman, 2001; Quinet and Vickerman, 2004; Bhalla, 2000; Polack and Heertjee, 2000; SACTRA, 1999 & 2000; Schelling and Lebo, 2001; Gannon and Liu, 2000; McCarthy, 2001; Boyer, 1998; Cole, 1998; Button and Pearman, 1985; Button, 1993; Dicky et al, 1980; OECD, 2001). The authors recognize the important role of transport for social and economic development of a country.

2.6 Conceptual Framework

The conceptual framework shows the relationship between the independent and the dependent variables. Further, it shows any other factor that may have any effect on the two variables as summarised in **Figure 1**.

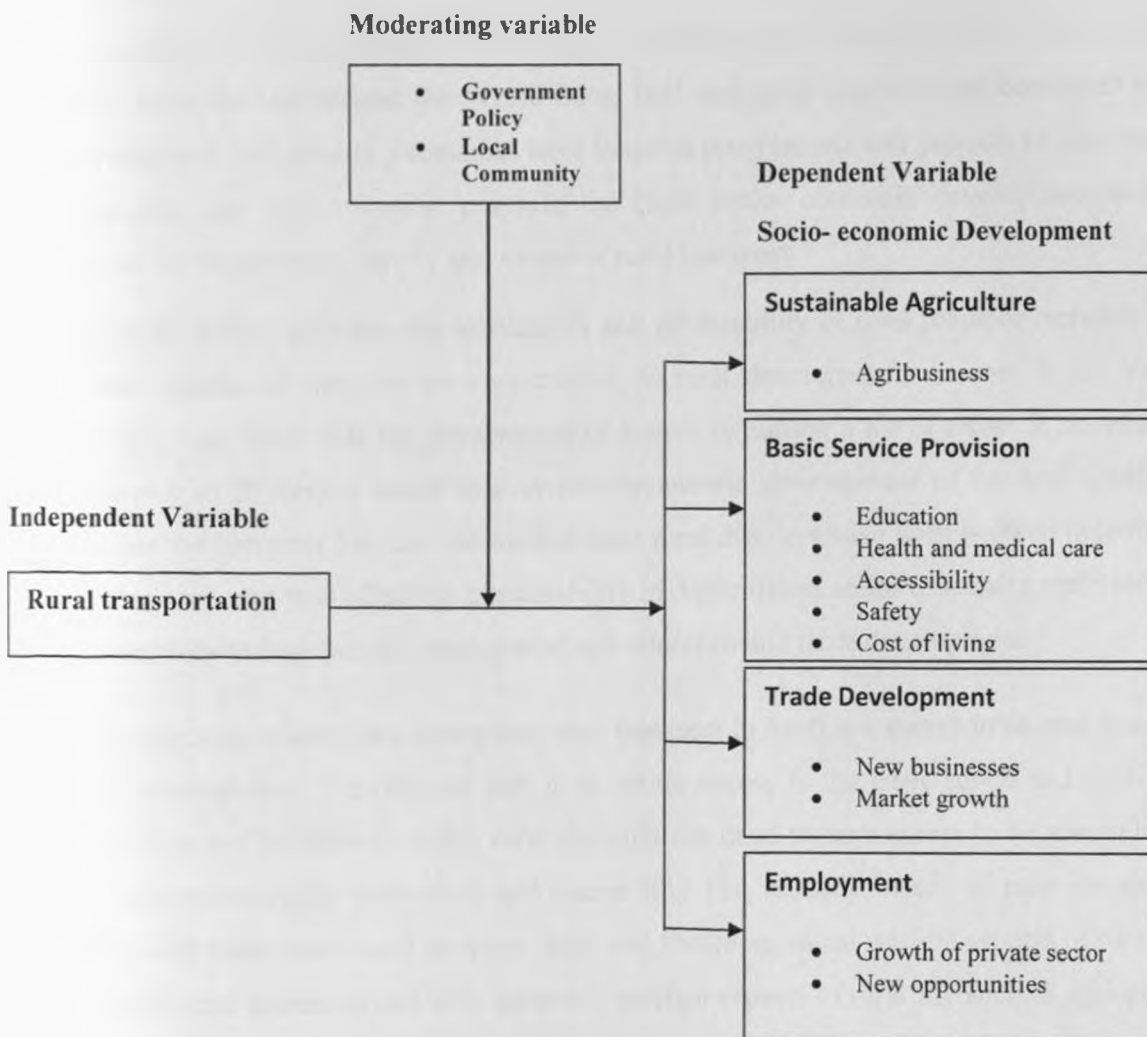


Figure 1: Conceptual Framework

The conceptual framework in this particular study shows that socio economic development on rural people depends on the rural transport, with dependent variable being; sustainable agriculture, basic service provision, growth of business enterprises, and access to employment opportunities. Moderating variable include the government policy and the local community. It is then through this conceptual frame that the researcher will be able to find out whether the independent variables have any effect on the socio-economic development of rural people in South Imenti District. The effects played by rural transportation on socioeconomic development of rural dwellers have not been given a lot of attention in terms of research and documentation. It is because of this that this study is going to be carried out by the researcher.

2.7 Summary of Literature Review

Rural transport is a subject that is receiving increasingly more attention from development specialists. Over the last decade, the World Bank, ILO and other organizations concerned with rural development and poverty alleviation have initiated programmes and projects to understand better the role that rural transport plays in the local socio- economic development and to demonstrate the importance, variety and extent of rural transport.

Donnges, et al, (2007) said that the availability and affordability of rural transport services and intermediate means of transport are very crucial; to rural development. As seen in the above literature it is very clear that the government of Kenya is putting a lot of effort in developing rural transport as it plays a major role in socio-economic development of its rural dwellers. Nevertheless the literature has also shown that most rural dwellers have been isolated in terms of the rural transport and thus affecting sustainability in Agricultural sector especially agribusiness, their accessibility to basic needs, employment opportunities and trade development.

Lastly, the literature review has shown that rural transport in itself is a means to an end in socio-economic development. The ultimate aim is to obtain access to the basic social and economic goods, services and facilities to which rural communities need to have access to be able to live a socially and economically productive and decent life. The transport needs of rural people are associated with basic needs such as water, food and firewood, social welfare aspects of rural life such as health and education and with economic welfare aspects of rural life such as agriculture, livestock and home industries.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlined the methodology that was to be applied in carrying out the study. The chapter started by outlining the research design, target population, sample size and sampling procedures and research instruments. This was then followed by validity and reliability of the instruments and data collection procedures. It ended with data analysis procedures.

3.2 Research Design

This study adopted the use of descriptive research design. This was in form of a cross sectional survey design. Survey design was appropriate where the study sought to describe the characteristics of certain groups, estimate the proportion of people who have certain characteristics and make certain predictions. It allowed the researcher to collect data from a relatively large sample. The study aimed to determine the effects of rural transport on socio-economic development of rural dwellers in South Imenti District, Meru County. The survey study design was chosen because it was useful in illustrating a general condition.

3.3 Target Population

The study constituted the whole of South Imenti District with a house hold population of 47,197.

3.4 Sample size Selection

The sample size of the respondents was determined by use of a table designed by Krejcie and Morgan (1970). According to Krejcie and Morgan (1970) a sample size of 381 should be selected from a population of over 50,000 people. The researcher selected a sample size of 381 respondents from South Imenti District that had a population of 47197 households as per the 2009 Population and Housing Census. This study adopted an approximate sample size of 384 respondents.

3.5 Sampling Procedure

Cluster random sampling approach was employed in selecting the respondents in six divisions. The study selected 64 households from every division, (Nkuene, Mitunguu, Abogeta East,

Abogeta West, Igoji East, and Igoji West), in South Imenti District. The selection was carried out using computer generated random number programme, a technique of simple random sampling. The data was recorded by writing the responses as provided by the respondents and where necessary, secondary data was used.

3.6 Data Collection Instruments

In designing research instruments the researcher considered the objectives of the study and the research questions. Data was collected using questionnaire, interview schedules and observation. The Questionnaire was used in primary data collection. These were informal and conversational methods of data collection.

3.6.1 Questionnaires

According to Mugenda and Mugenda (2003), a questionnaire is a set of related questions designed to collect information from a respondent. The questionnaire was the most appropriate instrument due to its ability to collect a large amount of information in a reasonably quick span of time. It also ensured confidentiality of the source of information through anonymity while ensuring standardization. One set of questionnaire was used in this study. It was administered to the households. This questionnaire was both unstructured and structured. Most of the questions were structured. The questionnaire contained sections covering all the independent variables.

3.6.2 Interviews Schedule

The research study adopted both structured and unstructured interviews. These methods got complete information because the interviewees expressed themselves freely and got all possible answers from the interviewee. The items in the interview schedule were collected from households in South Imenti District. The schedule entailed: the name of the respondent, gender, marital status, occupation/business he/she does, their experience in transportation of their goods and services, and what they felt about their transport.

3.6.3 Observation Guide

Observation used in the research involved going to the scene of action/behavior, and getting involved with what was going on. In the research, structured observation schedule was used. This was to enable the researcher to use an assistant in the observation process. The observation

schedule had the following items: the state and types of the transport check whether the rural people walk or use other means of transportation, and their living standards.

3.7 Data Collection Procedure

The respondent was provided with an introductory letter certified by the University of Nairobi, in order to boost his confidence and acceptance in participating in the study.

In collecting data, the researcher visited the sampled households, roads, institutions and offices of South Imenti District to administer the questionnaire and carry out the interviews. Where necessary, clarifications were made on the items of the questionnaire. The researcher also administered the questionnaires to the respondents, waited for them to be filled and then collected for analysis.

The researcher used both unstructured and structured observation. In unstructured observation the researcher went to the field and looked at the state of the roads, the means of transport they used, the living standards of the people and the types of businesses they were engaged in.

3.8 Validity of the Research Instruments

Validity is the extent to which a test measures what it claims to measure. Piloting was carried out to test for any ambiguities and inadequacies. The piloting was done on Imenti North District which had similar characteristics as those of the sample. Since the researcher randomly selected the respondents, it was believed that the results of the study were valid. All ambiguities realized during the pilot study were corrected.

3.9 Reliability of the Research Instruments

Reliability is the measure to which a research instrument yields consistent results after repeated trials (Mugenda and Mugenda, 2003). The researcher used split half technique of assessing reliability. Scores from one part were correlated with scores from the second part thus eliminating chance of error due to differing test conditions. A coefficient of 0.75 was realized and was accepted.

3.10 Data Analysis

Data analysis involved checking the research instruments to ensure completeness and error free. The data was then categorized according to research questions. Qualitative data was also organized into themes. The data was then coded and entered into Statistical Package for Social Sciences (SPSS) software. Quantitative data was analyzed using descriptive statistical analysis chi-square test. From SPSS, frequencies and percentages were calculated. The results were then presented in form of tables and observed and expected critical values at 5% significance level.

3.11 Definition of Operation Variables

Table 3.1: Operationalization table

Objectives	Variables	Indicator	Measure	Scale	Approach of analysis
To establish the effects of rural transport on sustainable Agriculture on rural dwellers in South Imenti District.	Independent Rural transport Dependent Sustainable Agriculture	Agricultural products	Tones of produce	Ordinal	Quantitative
To establish the effect of rural transport on basic service provision on rural people in South Imenti District.	Independent Rural transport Dependent Basic service provision	Health Centers Schools Wells	Distance to the well Distance to health centers	Ordinal	Quantitative
To establish the effects of rural transport on trade development of rural dwellers in South Imenti District.	Independent Rural transport Dependent Trade development	Distance to markets Upcoming of new businesses	Time spent to get to go to markets Number of new upcoming businesses	Ordinal Nominal	Quantitative Qualitative

<p>To establish the effects of rural transport on access to opportunities of employments on rural dwellers Imenti District.</p>	<p>Independent Rural transport Dependent Access to opportunities of employment</p>	<p>New employments New contracts</p>	<p>Number newly employed rural dwellers</p>	<p>Ordinal</p>	<p>quantitative</p>
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CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents the data analysis and interpretation of the research findings. The research was aimed at collecting information as per the objectives earlier predefined and hence be used to draw correlations, conclusions and recommendations in regard to the research. Data analysis consists of categorizing and tabulating the evidence to address the initial preposition of the study. The study used several data collection instruments, which consisted of an interview schedule, observation schedule and questionnaires.

4.2 Response Return Rate

The questionnaires were administered to 384 households' from six divisions of South Imenti hence ensuring reliability and validity. The respondent rate was 330 (85.9%) which the researcher deemed adequate for statistical reporting according to Mugenda and Mugenda (2003) which states that a response rate of 50% and above is a good response rate for analysis, therefore the response of 85.9% from the rural dwellers was sufficient and boosted the reliability of the study.

4.3 Profile of the respondents

The study sought to categorize profile of respondents based on gender, age, education level and marital status.

4.3.1 Distribution of respondents by Gender.

The aim of the research was to find the gender of the respondents to enable the study categorize the socio economic activities by gender. This information was very important in gauging gender equity in terms of opinion and need. This was to assist in identifying the level of disparity as concerns the different kinds of people and their perceptions, on the way the transport sector affects socio economic development in South Imenti. Men and women perceive things differently hence the need to have diverse opinion.

Table 4.1: Gender of the respondents

	Frequency	Percent
Male	156	47.2
Female	174	52.8
Total	330	100.0

Table 4.1 indicates that among the interviewed respondents, 52.8% were female while 47.2% were male respondents, which is in agreement with National census survey done in the year 2009, that indicates 49.7% are male and 51.3% are female. In this study, the research required the respondents to indicate some crucial parts of their personal details. The findings were that females were the majority rural dwellers in South Imenti, at the time of the survey.

4.3.2 Distribution of respondents by age

This study aimed at getting the age of the respondents in order to enable categorize them by age and then conclude as to whether socio-economic development situation in South Imenti is influenced by rural transportation or there were other factors, such as age of the rural dwellers.

Table 4.2: Age of respondents

	Frequency	Percent
18 – 24	28	8.5
25 – 30	69	21.0
31 – 35	46	13.9
Above 35	133	40.3
Withheld Age	54	16.3
Total	330	100.0

Table 4.2 indicates that majority of the respondents (40.3%) from a study conducted within the households lie in the age bracket of above 35 years. This is because the younger group is

involved in other productive activities outside the rural home. According to the Meru Development Plan 1984-1988, rural urban migration occurs with migrants consisting of school leavers who are attracted to urban centers in the hope of getting wage employment. The other younger rural dwellers were either in school or self-employed outside the rural areas. Those within the age bracket of between 25 and 30 constituted 21% while 13.9% and 8.5% constituted of ages between 31 to 35 and 18 to 24 years respectively, while 16.3% withheld their ages.

4.3.3 Education level of respondents

The study aimed at finding the education level of the respondents in order to enable the researcher to draw conclusion on what other factors besides rural transport influence socio-economic development situation in South Imenti.

Table 4.3: Education Level

	Frequency	Percent
None	30	9.1
Primary	116	35.2
Secondary	102	30.9
College/University	30	9.1
Did not respond	52	15.7
Total	330	100.0

Table 4.3 indicates majority of the interviewed, 35.2%, had the highest level of education as being primary level. Close to that is the proportion of those with a secondary level of education at 30.9%. The results are in agreement with the national economic survey results which show that majority of the rural dwellers have education of primary level. The proportion of the respondents with no formal school education, and those with college and university were at 9.1%, while 15.7% did not respond to that question.

4.3.4 Marital status of the respondents

The study sought to determine the marital status of the respondents in order to enable the research draw conclusions on effects of marital status on socio-economic status of rural dwellers in South Imenti.

Table 4.4: Marital status

	Frequency	Percent
Single	62	18.8
Married	260	78.8
Widowed	13	2.4
Total	330	100.0

Table 4.4 indicates that a larger proportion (78.8%) of the interviewed households constituted of the married people, 18.8% of the single and 2.4% widowed. This suggests that married people are likely to be settled in rural areas than singles.

4.4 Measuring the Socio economic status of South Imenti Rural Dwellers

The aim of the research was to measure the socio economic status of South Imenti rural dwellers, in order to ascertain the effects that the rural transport had on the people.

4.4.1 State of living standards in terms of housing and feeding

The study aimed at finding out the state of living standards of the respondents in terms of housing and feeding. This would enable the study draw conclusions on the socio-economic development of the respondents.

Table 4.5: Housing of Respondent

	Frequency	Percent
Mud	26	7.8
Stone	56	17.0
Timber	238	72.3
Thatched	10	3.0
Total	330	100.0

Table 4.5 shows that majority of the respondents had timber houses at 72.3%, followed by stone houses at 17%. A small percentage however, at 7.3 and 3%, had mud and thatched houses respectively.

Table 4.6: Feeding of Respondent

	Frequency	Percent
One meal	56	17.0
Two meal	89	27.1
Three meals	185	55.9
Total	330	100.0

Table 4.6 indicates that majority of the respondents, at 55.9% had three meals in a day and 27.1% two meals in a day while only 17% of the respondents took one meal per day.

4.4.2 State of living standards in terms of clothing and sanitation

The study aimed at finding out the state of living standards of the respondents in terms of clothing and sanitation. This would be used in drawing conclusions on the socio-economic development of the respondents.

Table 4.7: Clothing of Respondent

	Frequency	Percent
Well dressed	198	60
Poorly dressed	132	40
Total	330	100.0

Table 4.7 shows that 60% of the residents were well dressed with the remaining 40 % being poorly dressed. Those seen to be poorly dressed were mostly coming from the farms.

Table 4.8: Sanitation of Respondent

	Frequency	Percent
Good	221	67.3
Poor	109	32.7
Total	330	100.0

Table 4.8 shows that 67.3% of the respondents had good sanitation while 32.7% were having poor sanitation.

4.4.3 State of living standards in terms education

The aim of the study was to find out the state of living standards of the respondents in terms of their education levels.

Table 4.9: Education of Respondent

	Frequency	Percent
Primary	181	54.8
Secondary	113	34.2
Tertiary	21	6.3
No response	18	4.7
Total	330	100.0

Table 4.9 indicates majority of the residents had only attained primary level education, at 54.8%, which was followed by those with secondary education, at 34.2%, and only a minority, 6.3%, had obtained tertiary level of education. There was none response of 4.7% of the respondents.

4.5 Effects of rural transport on sustainable Agriculture

Majority of the respondents agreed that rural transport enabled the transportation of farm produce to the market especially the bananas and other horticultural products and also enabled access to agricultural inputs while facilitating buyers and businessmen to access farms to buy farm products.

4.5.1 The main Agricultural activities of the respondents

The study aimed at finding out the main agricultural activities, from the respondents. This would enable the researcher find out the effects of rural transport in enhancing sustainable agribusiness in South Imenti.

Table 4.10: Agricultural Activities

	Frequency	Percent
Tea farming	150	45.5
Banana & horticulture farming	110	33.3
Coffee farming	50	15.2
Others	20	6.0
Totals	330	100

Table 4.10 indicates that majority of the rural dwellers in South Imenti were tea farmers, 45.5%, while the others were in banana and horticulture farming with 33.3%, followed by coffee at 15.2% and others at 6.0%. With majority being in tea business, it implies that the rural roads are able to meet the dwellers expectation of marketing their produce to several markets in and outside the District since transportation of such cash crops is mainly by motorized traffic.

4.5.2 Response on annual income from the Agricultural produce

The research was aimed at finding out the annual income generated, by the respondents, from agricultural activities.

It is expected that the rural transport network plays a major role in facilitating the marketing of produce and in acquiring the prerequisite farm inputs. It also facilitates business people to buy goods directly from farmers thus reducing the handling costs. Banana and other horticultural produce are perishable goods that require quick transportation to markets hence reducing wastage.

Table 4.11: Annual income from the Agricultural produce

Income in Ksh.	Frequency	Percent
100,000 and below	150	45.5
100,000 – 500,000	110	33.3
500,000 – 2m	50	15.2
Over 2m	20	6.0
	330	100

Table 4.11 indicates that 45.5% of respondents earn below Ksh.100,000 while 33.3% earn between 100,000 and 500,000 annually. 15.2% of the respondents have an annual income of between 500,000 and two million shillings, while a small proportion of 6% receive an annual income of over 2million shillings.

4.5.3 Marketing of Agricultural produce

The aim of the study was to find out how marketing of agricultural produce was being carried out. by the respondents, in order to determine the effects of rural transport in enhancing sustainable agribusiness to South Imenti rural dwellers.

Table 4.12: Market of Produce

	Frequency	Percent
Personal Initiative	90	27.3
Middlemen	100	30.3
Associations/cooperatives	130	39.4
Other means	10	3.0
	330	100

Table 4.12 indicates that majority of the farmers were using cooperatives and associations to market their produce at 39.4%. Probably this is because of the tea product which still has a formidable cooperative due to the many small scale farmers. Others used middlemen which had 30.3%. The product that used middlemen was bananas, while tea and coffee used cooperatives and associations. Personal initiatives were at 27.3%, meaning the rural dwellers were able to market their produce even without middlemen. When asked why this was the scenario the dwellers explained that it was due to the good roads that enabled them to sell their produce directly from their farms. Other marketing methods were at 3.0%.

4.5.4 Mode of transport in use for Agribusiness purpose or marketing

The study aimed at finding out the mode of transport in use for agribusiness purpose and marketing of the produce, from the respondents, in order to determine the effect of rural transport on enhancing sustainable agriculture to South Imenti rural dwellers.

Table 4.13: Mode of transport in use

	Frequency	Percent
Personal vehicle	12	3.6
Public means	141	42.7
Bicycle	22	6.6
Walking	118	35.7
Others	37	11.4
Total	330	100.0

Table 4.13 indicates that majority at 42.78% were using public means while 35.73% of them actually admitted to walking to access some of the very basic agricultural services. 6.6% of the respondents used bicycles, with 3.6% having personal vehicles. However, a percentage of 11.4% preferred using other means of transport which include the motor bikes and taxi vehicles.

4.5.5: Transport infrastructure in use

The study sought to find out transport infrastructure in use by the respondents' in order to draw conclusions on the effect of rural transport on socio-economic development in South Imenti on rural dwellers.

Table 4.14: Transport infrastructure in use

	Frequency	Percent
Rural roads	252	76.4
Tracks	34	10.5
Path networks	17	5.1
Main highway	27	8.0
Total	330	100.0

Table 4.14 shows that majority (76.4%) of the respondents rely on rural roads that are not actually tarmacked/earth roads to access basic services in the region. A proportion of 10.5% of the interviewed respondents were able to access tracks, 5.1% mostly rely on path networks within the region with only a minority of 8.0% accessible to the main highway.

4.5.6 State of roads

The aim of the study was to find out the state of roads, from the respondents, in order to determine the effects of rural transport on socio economic development amongst South Imenti rural dwellers.

Table 4.15: State of roads in the interiors

	Frequency	Percent
Good	46	13.9
Fair	215	65.2
Poor	63	19.1
Impassable	6	1.8
Total	330	100.0

Table 4.15 indicates that at 65.2% the state of the roads in the interiors were in fair condition meaning they were not all weather roads but were well maintained, while only 13.9% of the roads were in good condition, with tarmac and gravel. The remaining sections at 19.1% and 1.8% of the roads were in poor condition and impassable respectively. Poor condition roads are

passable, with four wheel vehicles, during the dry weather only, while impassable roads have washouts or require bridges thus hinder passage to traffic.

4.5.7 State of path networks.

This study aimed at finding out the availability of path networks that are used by the rural dwellers.

Table 4.16: Responses on the availability of path networks

	Frequency	Percent
Yes	280	84.8
No	50	15.2
Total	330	100.0

Table 4.16 shows that majority of the areas, at 84.8%, had path networks and only 15.2% of the areas were not served.

4.5.8 Quality of the roads

The aim of the study was to find out the quality of rural roads network in Imenti South.

Table 4.17: Quality of the roads

	Frequency	Percent
Earth road	147	44.5
Graveled road	113	34.2
Tarmac road	47	14.2
Did not respond	23	7.1
Total	330	100.0

Table 4.17 indicates that the quality of the roads is such that majority were earth roads at 44.5%, while 34.2% were graveled and only 14.2% were tarmacked. 7.1% of the respondents did not respond to the question.

4.5.9 Effects of rural transport on marketing farm products or accessing farm inputs

This study aimed at investigating how rural transport system assisted in marketing farm products and facilitated in delivery of farm inputs such as fertilizer. Respondents were asked questions pertaining to tea, bananas, coffee and others.

Table 4.18: Effects of rural transport on marketing of farm produce, or delivery of farm inputs.

	Tea	Bananas	Coffee	Others	Total
Yes	62	70	50	30	212 (73.1%)
No	8	30	20	20	78 (26.9%)
Total	70	100	70	50	290 (100%)

$$\chi^2_{(\text{observed})} = 9.11 \quad \chi^2_{(0.05, 3df)} = 7.82$$

Table 4.18 shows the tabulated results of data collected from the respondents regarding marketing of farm products and accessing of farm inputs with respect to rural transportation.

The majority of the respondents, (73.1%), agreed that rural transportation assists the rural dwellers in marketing their produce and in obtaining farm inputs while (26.9%) did not agree. A Cross tabulation of the results showed that the observed or calculated chi-square value was 9.11 while the critical chi-square value was 7.815. Since the critical chi-square value was less than the observed value it was concluded that there is a relationship between the rural transport and marketing of farm products or availability of the farm inputs, at 5% significance level.

4.6 To establish the effects of rural transport on basic service provision

The research was aimed at getting the average distances from homes to the basic facilities such as the health center, the mills, the markets, schools and the nearest water source. Through open ended questionnaires and interview schedules the respondents confirmed that transport improvements in the region had enabled them to access basic service provision in that it assisted them to save time, enhanced and made it efficient for them to access health facilities in time of emergency and the children were able to be picked by the school bus in the morning and dropped

at home in the evening. Other respondents however were not satisfied with the condition of transport in the region and reported that no improvements had been made to the transport to enhance accessibility to school, health centers or the water sources. In order to improve the rural transportation in the region, the respondents suggested that the roads be upgraded through tarmacking to reduce dust and mud.

The results of the responses acquired from questionnaires, interview schedules and observation schedules were summarized as follows.

4.6.1 Distance to the market

The aim of the study was to find out the distance in Kilometers to the market centers, of the respondents, in order to determine the effects of rural transport on accessing basic services by South Imenti rural dwellers.

Table 4.19: Distance in Kilometer to the market center

	Frequency	Percent
Less than 1 km	150	45.5
1 – 5	100	30.3
6 – 10	50	15.2
Above 10	30	9.1
Total	330	100.0

Table 4.19 shows that majority of the residents travelled less than 1 Km, at 45.5 %, and 1 to 5 kilometers with only 30.3%. The rest of the respondents, at 15.2% and 9.1%, however did indicate the distance travelled to access basic services were 6 to10 and above 20 kilometers respectively.

4.6.2 Distance to the health center

In this study, information on the distances in Kilometers, to the health centers of the respondents, was collected so as to be used in determining the effect of rural transport on accessing basic

services, to South Imenti rural dwellers.

Table 4.20: Distance in Kilometers to the health center

	Frequency	Percent
Less than 1 km	90	27.2
1 – 5	200	60.6
6 – 10	20	6.1
11 – 15	20	6.1
Total	330	100.0

Table 4.20 points out that the distance to the health center, as opined by 60.6% of the respondents was 1 – 5 kilometers while 27.2% reported it was less than 1 kilometer. Distances of between 6 – 10 kilometers and 11-15 Km had the same percent response of 6.1%. The researcher further sought to know how they got to the health centers. Most respondents reported that they used non-motorized means but during emergency, motorized means was used.

4.6.3 Distance to the school

The aim of the study was to find out the distance, in Kilometers, to the school from the respondents' homes.

Table 4.21: Distance in Kilometer to the school

	Frequency	Percent
Less than 1 km	100	30.3
1 – 5	150	45.5
6 – 10	80	24.2
Total	330	100.0

Table 4.21 indicates that majority of respondents, at 45.5%, travelled between 1 to 5 kilometers to access schools while only 30.3% travelled distances of less than one kilometer. The longest distance travelled by the respondents, to access education facilities was 6 to 10 kilometers with

percentage of respondents at 24.2%. This travelling was however done by motorized means of transport.

4.6.4 Distance to the water source

The research study aimed at getting the distance in kilometers from the respondents' home to the water source.

Table 4.22: Distance in Kilometer to the water source

	Frequency	Percent
Less than 1 km	265	80.3
1 – 5	50	15.2
Above 5	15	4.5
Total	330	100.0

Table 4.22 indicates majority of the respondents, at 80.3%, travelled less than one kilometer to the water sources. The other 15.2% travelled 1 to 5 kilometers and only a minimal proportion of 4.5% had to travel long distances of above five kilometers. From these findings it was concluded that most of the rural dwellers were economically empowered to install water supply in their homesteads. This is an indication that the dwellers are economically empowered through their day to day economic activities.

4.6.5 Time it takes to access basic services by motorized means

The study aimed at finding out the time taken to access basic services by motorized means, in order to determine whether rural transport has an effect on access to basic services.

Table 4.23: Time taken to access basic service by motorized means

	Frequency	Percent
Less than 30 mins	318	96.4
1 - 2 hrs	12	3.6
Total	330	100.0

Table 4.23 indicates that majority of the respondents, at 96.4%, took less than 30 minutes to access basic services when using motorized means, with a small percentage, at 3.6% indicating time of 1 – 2 hours. This confirms the state of roads to be in good to fair condition

4.6.6 Time taken to access basic services by walking

The aim of the study was to find out the time taken to access basic services by walking.

Table 4.24: Time taken to access basic services by walking

	Frequency	Percent
Less than 30 mins	258	78.2
1 - 2 hrs	72	21.8
Total	330	100.0

Table 4.24 indicates that majority (78.2%) of the respondents are able to reach the basic service provision facilities within a period of less than 30 minutes on foot, with 21.8% of the respondents being able to get to their destinations within 1 to 2 hours.

4.6.7 Time taken to access basic services by non-motorized means

The study aimed at finding out the time taken to access basic services by non-motorized means. This would enable the researcher draw conclusion on whether rural transport has effects, on accessing basic services in South Imenti, on rural dwellers.

Table 4.25: Time taken to access basic services by non-motorized means

	Frequency	Percent
Less than 30 min	241	73.1
1 - 2 hours	89	26.9
Total	330	100.0

Table 4.25 shows the time taken to reach basic service provision centers by non- motorized means, with a majority (73.1%) being able to access the basic facilities within 30 minutes, and the rest (26.9%) within 1 to 2 hours.

4.6.8 Effects of rural transport on basic service provision

The aim of the study was to gauge the general opinion of the respondents on the effects of transport on basic service provision.

Table 4.26: Effects of rural transport on basic service provision

Effects	Service Centers			Totals
	Market Centers	Health Centers	Schools	
Yes	56	80	56	192 (80%)
No	14	20	14	48 (20%)
Total	70	100	70	240 (100%)

$$\chi^2_{(\text{observed})} = 19.23 \quad \chi^2_{(0.05, 2df)} = 5.91$$

Table 4.26 indicates that the majority respondents, at 80%, reported that rural transport affected basic service provision such as health, water, education and other sectors as opposed to 20% who felt the effects were not recognizable.

Cross tabulation of the results indicated that the critical chi-square value was 5.991 as compared to the observed or calculated chi-square value of 19.23 thus concluding that there was a relationship between rural transport and basic service provision, at 5% significance level.

4.7. To establish the effects of rural transport on trade development

The research was aimed at getting the opinions of the respondents on how the rural transport had enhanced the improvement of trade and growth of new markets in South Imenti District. A majority of the respondents agreed that rural transport enabled the transportation of farm produce to the market especially the bananas, and also enabled them to access agricultural inputs while facilitating buyers and businessmen access farms to buy their commodities. Other respondents however did not believe that the rural transport had in any way improved on the trade and

emergence of new markets.

4.7.1. Effects of rural transport on new markets and trade development

The aim of the study was to investigate the changes in the market centers that occurred in form of new construction of business premises such as shops and other related building structures. This was to assist in finding out if the businesses were growing in form of infrastructural development.

Table 4.27: Growth of Market Building Infrastructure

	Frequency	Percent
Yes	282	85.5
No	48	14.5
Total	330	100.0

Table 4.27 indicates 85.5% of the respondents had witnessed new construction of shops and other structures and only 14.5% had the opinion that no new constructions were coming up.

4.7.2 New Businesses

The study aimed at determining whether there were new businesses sprucing up within the rural area. This was to assist in finding out if the rural road infrastructure and transport services were contributing towards enhancement of businesses within rural areas.

Table 4.28: Distribution of new businesses

	Frequency	Percent
Yes	210	63.6
No	120	36.4
Total	330	100.0

Table 4.28 indicates that the majority interviewed, at 63.6%, agreed that new businesses had come up, while 36.4% were of the idea that no new business had been started.

4.7.3 Increase in customers

The aim of the study was to investigate the increase in customers for the new and existing businesses.

Table 4.29: Increase in customers

	Frequency	Percent
Yes	260	78.9
No	70	21.1
Total	330	100.0

Table 4.29 indicates that 78.9% of respondents confirmed increase in customers while 21.1% had the opinion that more had to be done to attract customers to the rural areas.

4.7.4 Rural Transport contribution to growth of business

The study findings were to assist in getting an overall picture of the contribution of the rural transport to growth of businesses.

Table 4.30: Rural transport contribution to growth of business

Business Growth	New shops constructed	New businesses	Increased Customers	Total
Yes	40	70	45	155 (70.5%)
No	30	30	5	65 (29.5%)
Total	70	100	50	220 (100%)

$$\chi^2_{(\text{observed})} = 15.14 \quad \chi^2_{(0.05, 2df)} = 5.99$$

Table 4.30 indicates that 70.5% of the respondents felt that rural transport contributed positively towards the growth of businesses in the rural areas in South Imenti, while 29.5% were negative about the effects.

A cross tabulation of the results showed that the critical chi-square value was 5.99 while the observed chi-square value was 15.14, at 5% significance level. It was therefore concluded that there is a relationship between rural transport and business growth in the rural areas.

4.8 To establish the effects of rural transport on access to opportunities of employment

Regarding whether the rural transport in south Imenti District improved opportunities of employment, majority of the respondents indicated that as a result of rural transport, many businesses were coming up; others stated that the transport enhances mobility to the work place and that people had started roadside businesses by selling farm produce by the roadside. This was also observed and indicated that many of residents had ventured into the motorbike 'boda boda' business as a mode of self-employment.

4.8.1 Respondent employed in road works

The research aimed at finding out the number of rural dwellers employed as a result of the rural roads improvements. The information was to assist in determining effects of the improvements of rural transport on new opportunities for employment pattern, in South Imenti District, to the rural dwellers.

Table 4.31: Employment pattern in South Imenti

	Frequency	Percent
Employed	230	69.7
Not Employed	100	30.3
	330	100

Table 4.31 indicates that majority of South Imenti District rural dwellers were able to get employment on improvement of rural roads, at 69.7%, while 30.3 % were not employed.

4.8.2 Nature of employment

The research aimed at finding out the nature of employment the dwellers of South Imenti had been able to get since the improvement of rural roads.

The research further sought to investigate the nature of jobs or employment of the rural dwellers.

Table 4.32: Nature of employment

	Frequency	Percent
Public Sector	55	16.6
Private	60	18.2
Self-employment	115	34.9
Not employed	100	30.3
	330	100.0

Table 4.32 indicates majority of the respondents, at 34.9% were in self-employment (engaging in small micro enterprises) while those in private and public sector were at 18.2% and 16.6% respectively. The proportion of respondents who felt they did not benefit from rural transportation was 30.3%.

4.8.3 Marketing of Produce in Urban Areas

This study aimed at establishing how rural transport assists rural dwellers in getting farm produce to markets, far away from the rural areas. This reduces the over saturation of commodities in the local markets hence increasing competition and prices. This is possible only if the rural transport is functional and delivers the produce to urban markets promptly.

Table 4.33: Distribution of sales away from rural areas

	Frequency	Percent
Yes	250	75.8
No	80	24.2
	330	100

Table 4.33 indicates that the majority of the respondents at 75.8% believe that rural transport assists them sell their produce to other markets, while 24.2% of the respondents felt more has to be done before any effects are recognized.

4.8.4 Ability to commute to and from urban centers for employment

The study findings were to assist find out whether the rural transport helped the rural dwellers employed in urban centers to commute daily from their rural homes. This would assist respondents save accommodation expenses and also work within their homesteads.

Table 4.34: Distribution of commuter journeys to and from urban areas

	Frequency	Percent
Yes	233	70.6
No	97	29.4
	330	100

Table 4.34 indicates that majority of the respondents at 70.6% were of the opinion that rural transport assisted in commuting to and from urban centers for employment, while 29.4% were not convinced it is true.

4.8.5 Effects of rural transport on accessing opportunities of employment

This study aimed at investigating the general perception of the rural dwellers on whether rural transport contributed towards job creation and also if it facilitated them to access employment opportunities.

Table 4.35: Distribution of effects on accessing employment opportunities

Access to Job Opportunities	Road Sector	Job at urban centers	Job in new markets	Total
Yes	70	48	102	220 (73.3%)
No	30	32	18	80 (26.7%)
Total	100	80	120	300 (100%)

$$\chi^2_{(\text{observed})} = 16.21 \quad \chi^2_{(0.05, 2df)} = 5.99$$

Table 4.35 indicates that the majority of the respondents 73.3% agreed that transport had a positive contribution towards accessing opportunities for employment, while 26.7% did not believe rural transport had done enough to create employment.

On cross tabulation of the results, the critical chi-square value was 5.99 and observed chi-square value was 16.21. Since the observed value was more than the critical chi-square value at 5% significance level, it was concluded that there is a relationship between rural transport and accessing opportunities to employment.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

Chapter five gives the study's summary of findings, discussions, conclusions and appropriate recommendations that the researcher considered necessary together with the suggestions for advanced studies that needed attention.

5.1 Summary of findings

Rural transport has enabled the transportation of farm produce to the market, especially the bananas and tea, and also provided access to agricultural inputs. It has also enabled buyers and business men and women to access farms to buy the produce. This has resulted to sustainable agriculture and agribusiness.

Improvements in rural transportation in the region has enabled the rural dwellers to access basic service provision in that it assists them to save time, enhanced and made it efficient for them to access health facilities in time of emergency and the children are now able to be picked by the school bus in the morning and dropped at home in the evening.

Rural transport increased opening up of businesses in the rural areas. The dwellers were connected to other market points outside their District.

Improving rural transport facilitated accessibility to opportunities of employment to the South Imenti rural dwellers.

5.2 Discussions

The discussions are guided by the research objectives of the study. These discussions are based on data collected from rural dwellers in South Imenti district in the year 2012.

Majority of the respondents were appreciative of the rural transport in that it enabled the transportation of farm produce to the market especially the bananas and tea, enabled them to access agricultural inputs while also enabled buyers and business men to access farms to buy the products. The transport means used by the respondents showed that majority (42.78%) of the

respondent use public means while 35.73% of them actually admitted to walking in accessing some of the very basic services. 6.6% of the respondents use bicycle with 3.6% having personal vehicles. However, a percentage of 11.4% preferred using other means of transport which include the motor bikes and taxi vehicles as shown by Starkey, (2008).

The researcher was also interested in knowing the average distance from the homes to the basic facilities like the health center, the mills, the market, school and the nearest water source. Through opened ended questionnaires and interview schedule the respondents confirmed that transport improvements in the region has enabled them to access basic service provision in that it assists them to save time, enhanced them and made it efficient for them to access health facilities in time of emergency and the children are now able to be picked by the school bus in the morning and are dropped at home in the evening. This is in agreement with ADB, (2002b) who noted that a well-functioning transportation system will increase safety and convenience, reduce environmental impacts, and improve access to public and private services (education, health, entertainment, retail, government).

Other respondents however were not satisfied with the condition of transport in the region and reported that there are no improvements made to the transport to enhance accessibility to school, health centers or the water source. This is in line with what Dawson and Barwell (1993) had realized in that limited availability of IMTs (especially to women) and their technical unsuitability for collection of water from many natural sources. In order to improve the rural transportation in the region, the respondents suggested that the roads be upgraded through tarmacking to reduce dust and mud.

The researcher was also interested in the opinion of the respondent on how the rural transport has enhanced the improvement of trade and new markets in the region. A majority of the respondents were appreciative of the rural transport in that it enabled construction of new shops and opening of new markets. Nevertheless, the other respondents however did not believe that the rural transport has in any way improved on the trade and new markets. The researcher sought the opinion of the respondent on whether the rural transport network and its condition does affect the development of trade in the region. Majority of the respondents, 85.5% were for the opinion that it actually does affect development of trade while the rest 14.5% felt that it did not in any

way affect the development of trade in the region.

Regarding whether the rural transport in Imenti District improved opportunities of employment, majority of the respondents indicated that as a result of rural transport, many businesses were coming up; others stated that the transport enhanced mobility to the work place and that people had started roadside businesses by selling farm produce by the roadside. This was also observed and indicated that many of residents had ventures in the motorbike 'boda boda' business as a mode of self-employment. Donnges, Edmonds, Johannessen, (2007) said that the availability and affordability of rural transport services and intermediate means of transport are very crucial; to rural development, this has been seen on this area of development of new markets and trade.

Transport Research Laboratory (2002), reported that roads in rural Africa, in particular gravel roads are vital to the socio-economic wellbeing of local communities. Measuring the Socio economic status of South Imenti Rural Dwellers, it has been found that rural transport has actually affected the socioeconomic status of the rural dwellers positively. This was established through the houses found in the place, where majority had semi-permanent houses built of timber at 72.3% followed by stones at 17.0%. Also most households could afford three meals at 55.9%, well dressed at 59.9% and with good sanitation at 67.3% .Despite the fact that the Millennium Development Goals (MDGs) failed to explicitly refer to transport, a wealth of evidence underlines transport's potential as a key catalyst in the delivery of MDGs (Czuczman, IFRTD. 2008). which has been found from this study.

5.3 Conclusions

The researcher concludes that rural transport influences positively the socio-economic development of South Imenti district dwellers. This is guided by the responses collected analyzed and interpreted from households in South Imenti.

In establishment of how rural transport influenced sustainable Agribusiness, the researcher concludes that it influences sustainable Agribusiness especially where the roads were well developed and maintained. This was due to improvement to access of farming products, farming input and marketing of farm products by the farmers.

Also rural transport facilitates quick access to basic services as found from the study. Almost all

the basic facilities were within the reach to the households as a result of good tarmacked and graveled roads that made IMT (Intermediate Means of Transport) available to the dwellers.

Lastly the researcher concludes that rural transport in South Imenti District has influenced opening of trade opportunities and employment. This is because of the connectivity factor of the area with other towns such as Chogoria, Nkubu and others. The opening of trading and employments opportunity has contributed to socio-economic development in South Imenti District. The living standard for the local people has improved.

5.4 Recommendations

The researcher recommends the following:

- 1) That the government of Kenya through Ministry of Roads and transport to increase funding for rural roads and plan for continuous assessment of the effect of rural transport on the rural dwellers as they implement transport projects. This would guide them on the social-economic changes brought about by the transport improvement to the rural population.
- 2) The communities organize themselves to marketing Associations so that the Agribusiness product can be marketed to other district since rural transport is good.
- 3) The researcher should carry out further studies in the area of road management and maintenance. A study to determine the impact of rural transport on socio economic development of rural dwellers should be done. This will assist justify a request for funds to be used on transportation projects in Imenti South District and later in other parts of the country.

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APPENDICES

Appendix 1: Introductory Letter

Patrick Kiriimi Theophilus
University of Nairobi

Dear Respondent,

Re: Request Questionnaire Responses

This is to request you to participate in this purely academic research study. I kindly request for your assistance, in responding to the attached questionnaire, to provide the much valued data for the research study analysis.

The questionnaire is strictly for academic purposes and any information given shall be treated with strict confidentiality; please give the information as accurately as possible. Thanking you in advance

Yours faithfully,



Patrick Kiriimi

Appendix 2: Questionnaire for house holds

Instructions:

Please respond by ticking what you think is good with you. All your responses will be confidential.

SECTION A: DEMOGRAPHIC PROFILE

1. State your gender

- a) Male [] b) Female []

2. Please indicate your age

- a) 18-24 [] b) 25-30 [] c) 31-35 [] d) above 35 []

3. Please indicate your education level

- a) None [] b) Primary [] c) secondary [] d) college/university []

4. What is your marital status?

- a) Single [] b) Married [] c) Widowed [] d) Others []

SECTION B: EFFECTS OF RURAL TRANSPORT ON AGRIBUSINESS

5) What agricultural activities are you engaged in?

- a) Tea Farming [] b) Banana farming & other horticultural Products []
c) Coffee Farming [] d) Others []

6) What is the combined annual income of the above farming activities?

- a) 100,000 and below [] b) 100,000 – 500,000 [] c) 500,000 – 2m []
d) Over 2m []

7) How do you market your farm produce?

- a) Personal Initiatives [] b) Middlemen [] c) Cooperatives []
d) Other means []

8) How do you get farm input supplies?

a) Direct purchase [] b) Cooperatives [] c) Middlemen [] d) Others []

9) What is your rating of the condition of the rural roads in your area?

a) All Weather [] b) Seasonal [] c) Impassable [] d) Others []

10) Have the rural roads in your area assisted in accessing farm inputs or marketing of farm produce?

a) Tea : Yes [] No []

b) Banana & other horticultural products: Yes [] No []

c) Coffee: Yes [] No []

d) Others: Yes [] No []

SECTION C: EFFECTS OF RURAL TRANSPORT ON BASIC SERVICE PROVISION

11) What are the average distances from homes to the basic facilities?

a) Market Centers

- less than 1km []
- 1-5 km []
- 6-10 km []
- Above 20 km []

b) Health Center

- less than 1km[]
- 1-5km[]
- 6-10km[]
- 11-15km[]

c) Distance to school

- less than 1km[]
- 1-5km[]
- 6-10[]

d) Distance to Water Source

- less than 1km[]
- 1-5km[]
- 5-10[]
- 11-15 km[]

12) What is the mode of transport to schools?

a) Motorized []

b) Non- motorized []

13) What time is taken to access basic services by both motorized and non-motorized means of transport?

a) Motorized means

- less than 30 mins []

- 1-2hrs []

b) Non motorized means

- Less than 30mins []
- 1-2 hrs []

14) Has rural transport contributed towards accessing basic services and facilities in your area?

a) Market centers: Yes [] No []

b) Health centers: Yes [] No []

c) Schools: Yes [] No []

SECTION D: EFFECTS OF RURAL TRANSPORT ON TRADE DEVELOPMENT

15) Have you witnessed new structures, shops etc. being constructed at market centers? Yes []
No []

16) Are there new businesses coming up in your area? Yes [] No []

17) Has there been increase in customers for farm produce? Yes [] No []

18) Has the rural transport contributed to the growth of business in your area?

a) New shops/structures: Yes [] No []

b) New businesses: Yes [] No []

c) Increased customers: Yes [] No []

SECTION E: EFFECTS OF RURAL TRANSPORT ON CREATION OF EMPLOYMENT OPPORTUNITIES

19) Have you gotten a job with the road sector or road programmes such as R2000?

Yes [] No []

20) Are you able to sell your produce further away from your area?

Yes [] No []

21) Are you able to commute to and from the urban centers for employment?

Yes [] No []

23) Do you think rural transport has assisted in accessing opportunities for employment?

a) Jobs in road sector/R2000: Yes [] No []

b) Selling produce to far away markets: Yes [] No []

c) Community to and from job: Yes [] No []

Appendix 3: Interview schedule House holds

- 1) What are the distances in Kilometer to the market/ Health Center/ School?
- 2) How long does it take you to get there by motorized means?
- 3) How long does it take you to get there by walking?
- 4) What challenge do you encounter in terms of transport in this area?
- 5) Does the community get involved in finding a solution? If yes, How?
- 6) a) Who do you report to any transport issues in this area?
c) Do you think enough is being done by relevant persons in terms of management and financing of road network? If No, Why?
- 7) How does transport help in Agribusiness?
- 8) Out of your observation do you think rural transport can affect trade development? If Yes How?
- 9) How does rural transport enhance accessing opportunities for employment?

Appendix 4: Observation Schedule

- 1) What is the state of the roads in the interiors?
- 2) Are there any path networks?
- 3) How is the quality of the roads?
- 4) a) Type of road transportation in use in the area?

b) What is the quality of the motorized vehicles?
- 5) What means of transportation the South Imenti dwellers use to access basic facilities?
- 6) What Socio-economic activities are the people involved in?
- 7) What the state of their living standards in terms of?
 - a) Housing
 - b) Feeding
 - c) Clothing
 - d) Sanitation
 - e) Education
- 8) Are there new upcoming business in the places where there is good road network?
- 9) Does the Agribusiness seem to be sustainable?(indicators: Horticulture)

Appendix 4: Sample Size Table

By Krejcie Morgan - 1970

Required Sample Size [†]								
Population Size	Confidence = 95%				Confidence = 99%			
	Margin of Error				Margin of Error			
	5.0%	3.5%	2.5%	1.0%	5.0%	3.5%	2.5%	1.0%
10	10	10	10	10	10	10	10	10
20	19	20	20	20	19	20	20	20
30	28	29	29	30	29	29	30	30
50	44	47	48	50	47	48	49	50
75	63	69	72	74	67	71	73	75
100	80	89	94	99	87	93	96	99
150	108	126	137	148	122	135	142	149
200	132	160	177	196	154	174	186	198
250	152	190	215	244	182	211	229	246
300	169	217	251	291	207	246	270	295
400	196	265	318	384	250	309	348	391
500	217	306	377	475	285	365	421	485
600	234	340	432	565	315	416	490	579
700	248	370	481	653	341	462	554	672
800	260	396	526	739	363	503	615	763
1,000	278	440	606	906	399	575	727	943
1,200	291	474	674	1067	427	636	827	1119
1,500	306	515	759	1297	460	712	959	1376
2,000	322	563	869	1655	498	808	1141	1785
2,500	333	597	952	1984	524	879	1288	2173
3,500	346	641	1068	2565	558	977	1510	2890
5,000	357	678	1176	3288	586	1066	1734	3842
7,500	365	710	1275	4211	610	1147	1960	5165
10,000	370	727	1332	4899	622	1193	2098	6239
25,000	378	760	1448	6939	646	1285	2399	9972
50,000	381	772	1491	8056	655	1318	2520	12455
75,000	382	776	1506	8514	658	1330	2563	13583
100,000	383	778	1513	8762	659	1336	2585	14227
250,000	384	782	1527	9248	662	1347	2626	15555
500,000	384	783	1532	9423	663	1350	2640	16055
1,000,000	384	783	1534	9512	663	1352	2647	16317
2,500,000	384	784	1536	9567	663	1353	2651	16478
10,000,000	384	784	1536	9594	663	1354	2653	16560
100,000,000	384	784	1537	9603	663	1354	2654	16584
300,000,000	384	784	1537	9603	663	1354	2654	16586

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