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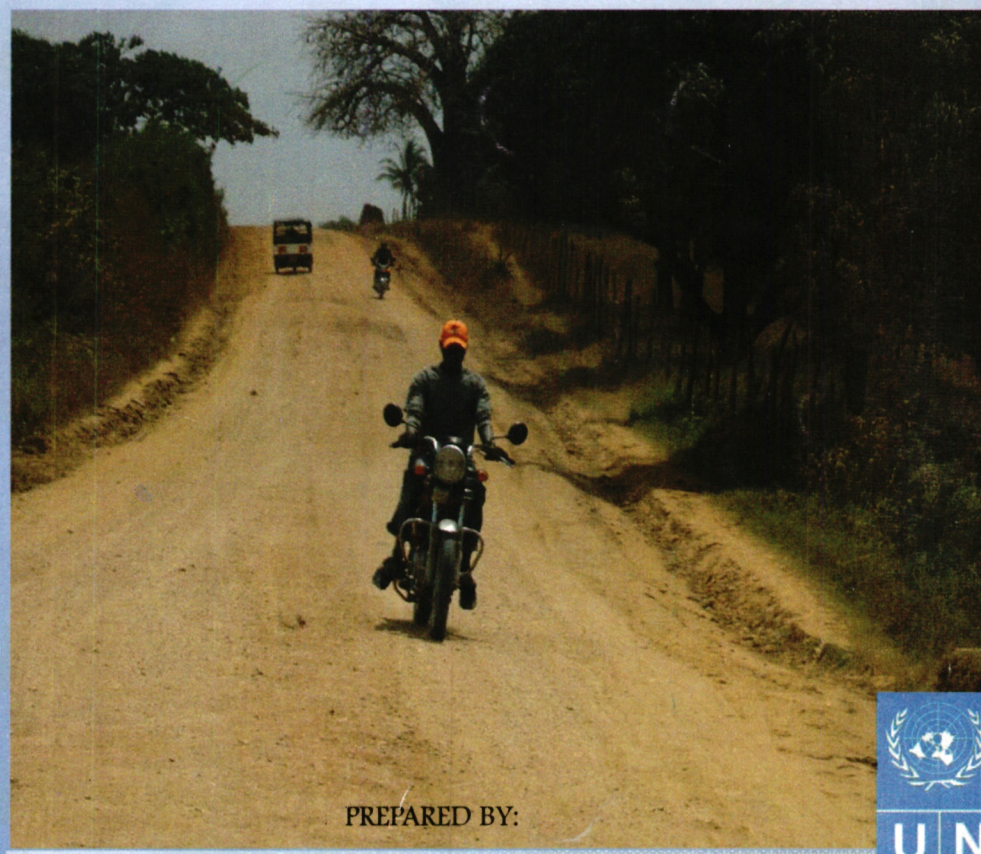
RURAL ROAD TRANSPORT INFRASTRUCTURE AND ACCESS TO HEALTH CARE SERVICES: A CASE STUDY OF 6 COUNTIES

(KWALE, MAKUENI, SIAYA, LAIKIPIA, NYERI & KAJIADO)



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KENYA VISION 2030
TOWARDS A GLOBALLY COMPETITIVE AND PROSPEROUS NATION

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Foreword

In Kenya, according to the Service Provision Assessment Survey (2010), 41 percent of the people still do not have access to affordable health care. The most affected are the rural communities. The (MDGs) status report, 2010, indicates that reduction of child mortality, improving maternal health and combating HIV and AIDs, Malaria and other diseases are unlikely to be achieved by 2015. Additionally, the report states that 60 percent of people in Kenya live more than eight kilometres from a healthcare facility while a substantial percent (46.8) have no access to clean safe drinking water in the rural areas. There is a clear association between infant, child and maternal mortality rates, HIV and AIDs, and malaria and distances to health care services. In addition, majority of the Kenyan citizenry still do not have access to affordable health care with the most affected being the rural communities. This is against the Kenya Vision 2030 aspirations of provision of equitable and affordable quality health care services to all Kenyans.

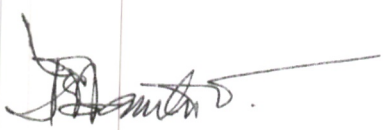
In view of the foregoing, however, there is very little information on factors hindering the reliability of the rural road network as well as the types of road networks used for accessing health services in rural Kenya. Further, to date, there has been no adequate information and data on the level of accessibility of services in rural areas despite the increase in the number of health facilities constructed using CDF and other devolved funds. Adequate information would make it possible to have factual evidence based policies for improved quality of life for all Kenyans. This would contribute to the realization of the Kenya Vision 2030 aspiration of equity and affordability in health care provision.

Therefore, in the face of the urgent need to achieve MDG 4 on Reduction of Child Mortality, MDG 5 on Improving Maternal Health and MDG 6 on Combating HIV and AIDs, Malaria and other Diseases, the need to enable the transport sector to take a holistic, health sensitive approach during planning and implementation of transport interventions and the need to realize the importance of sustainable access to health services, this survey is an important step with a view to informing policy on possible intervention measures in improving mobility in rural areas to enhance rural community access to health care services and other social amenities.

The main objective of the study was to systematically assemble data/information and experiences that can provide key policy options for improved rural road transport services in order to enhance the livelihood of Kenyans.

My gratitude goes to Mrs. Katherine Muoki, the Director Infrastructure, Science, Technology and Innovations Directorate for overseeing the coordination of the entire exercise. The report provides key recommendations which would have far reaching policy implications.

I wish to thank all the officers who were involved in the survey organization, administration of the questionnaires, data analysis and report writing.



DR. EDWARD SAMBILI, CBS
PERMANENT SECRETARY

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A number of people greatly contributed to the successful completion of this research study. I would like to thank the Permanent Secretary and the Economic Planning Secretary, Ministry of State for Planning, National Development and Vision 2030 for their time, guidance and advice without which it would have been difficult to undertake the research study.

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Special thanks go to the United Nations Development Programme (UNDP) for making available funds for the main survey, data analysis and printing of this report.

Lastly but not least, I sincerely thank the respondents, for the provision of necessary information without which this report would have been a pipe dream.

KATHERINE MUOKI
DIRECTOR OF PLANNING, ISTID

Executive Summary

The main objective of the study was to systematically assemble data/information and experiences that can provide key policy options for improved rural road transport services in order to enhance the livelihood of Kenyans. The data/information and experiences are specifically useful for;

- Identifying the role rural road transport infrastructure could play in improving access to health care services by rural communities;
- Enabling the transport sector to take a holistic, health sensitive approach in the planning and implementation of transport interventions;
- Identifying major constraints facing Kenya in ensuring efficient rural road transport infrastructure and services;
- Proposing strategies that could ensure that rural road transport infrastructure and services are improved; and
- Determine the level of involvement of communities in decision making of Government development Projects on road infrastructure.

The study employed both qualitative and quantitative approaches.

The main survey was carried out in 4 Counties namely Kwale, Makueni, Siaya and Laikipia. In each County, five clusters (KNBS structures) were identified and from which 12 representatives of households were identified to represent the cluster. There were 2 sets of structured questionnaires: an FGD schedule for the community and key informants' schedule for Roads Officer (RO)/Roads Engineer (RE), Health Personnel, Provincial Administration and a Women Representative. The questionnaires were designed to capture both qualitative and quantitative responses.

The findings indicated that Malaria was the most common ailment in all the six (6) Counties followed by HIV and AIDs, Pneumonia and TB. In Kwale, Bilharzia, a water bone disease was said to be common due to water contamination while in Nyeri, Arthritis was found to be common among the elderly. Brucellosis and Trachoma were widespread in Kajiado and Laikipia counties while Diabetes, Typhoid and Amoeba were more pronounced in Makueni County. In Siaya, HIV and AIDs was reported to be more pronounced and many homesteads had orphaned children.

All the participants interviewed visited health facilities while sick although a substantial 33.3 percent said some of their relatives did not seek health services citing economic problems, distance to the health facilities, retrogressive cultures, lack of facilities and equipment such as drugs, labs, staff and preference for herbal medicine as some of the contributing factors. Further, it was established that the majority (96.3 percent) sought health care services from Government facilities while 63 percent sought the services from Herbalist/Traditional Birth Attendants (TBAs)/Traditional Healer while 3.7 percent sought services from Private hospitals (this was attributed to perceived high service costs).

During rainy season, it was reported that most communities were un-able to access health services as most roads have no bridges and the concrete slabs are swept away. In terms of distance to the nearest health facility, it was reported that on average, community members were covering 5.07km. Community members from Kwale trekked for an average of 4.1 km, while those in Laikipia walked for about 6 km on average. Makueni County members were the most affected on average covering 6.7 km while those from Nyeri, Kajiado and Siaya were covering an average of 4.4 km. On average, communities took 86 minutes to get to a health facility with others taking more than 3 hours. In case one is referred, it takes an average of 128 minutes to get to the referral hospital.

People suffering from various ailments in the sampled counties require transportation at different periods. Severity of the illness and/or ability of the patient to walk are key determinants of transportation needs. Accessibility conditions (e.g. distance, terrain, road conditions during rainy season etc.) are major influences on health related transport demand or need. In some areas, it was reported in the various groups that difficulties in accessing health care services due to prevailing topographical conditions were severe. Despite the long distances to the facilities, communities reported to walking or using a motor bike depending on the severity of the ailment. On average, it costs Kshs. 261 on a motorbike and Kshs. 590 on a vehicle to get to a health facility.

In terms of mode, mostly, earth roads (88.9 percent) are available followed by footpaths (66.7 percent) with tarmac and murram roads receiving the lowest response (14.8 percent). Both earth roads and footpaths are impassable during rainy season and dusty during dry season. Such conditions aggravate ailment conditions. To get to the main road in order to board a vehicle/motorbike, community roads-earth

roads, are the most common. Some of the communities are quite far from the main roads such that people take slightly above an hour to get to the main road (M=74 minutes).

Communities reported non-involvement in road development decision making (92.2 percent); the only involvement being as casuals or when a road project is likely to encroach on a private piece of land. However, these are occasional and take place after more than two years as roads are maintained/developed when need arises. This is expected to change with the full implementation of the Roads Sector Investment Plan (RSIP) which proposes continuous regular maintenance. Further, both Government and community efforts were lauded as the only viable roads development initiatives. Roads developed by factories and those funded by CDF were said to be dependent on occasions/seasons. Some constituencies (e.g. Mathira) were said to have excavators purchased through CDF for local roads development upon request.

Other than roads, communities listed distance as the most important determinant of their health seeking behaviour. Insecurity in roads, mostly while walking to access services, was pointed out as determinants which aggravate ailment conditions.

Preference for use of certain types of transport (e.g. the bicycle and the motor cycle etc.) was noticeably high in the six counties; an indication of the need; for safety awareness on these modes of transport and/or better location of health facilities. Further, the impact of other factors which include income, information on the use of National Health Insurance Fund (NHIF) cards, information on facilities constructed using devolved funds and the quality of health care services should not be underestimated. The significant interrelationship between the various aspects and the nature of casual relationship is important for holistic healthcare provision. Communities reported to not being aware of NHIF in health care provision for non-employed.

Infrastructure development, particularly rural roads and especially road surface quality and interconnectivity is crucially significant for the achievement of MDGs 4, 5 6 and in the realization of Kenya Vision 2030 health sector aspirations. If women and children could access health facilities in good time and with ease, maternal health will improve as well as reduction in child mortality and access to anti-retroviral drugs.

Hence, rural road development should be a supplement in the road sector development strategy and be addressed in an appropriate way regarding the real situation of the country. Some consideration regarding the development of rural roads to facilitate access to health services:-

- A strategy to connect rural areas to the main roads be developed in conjunction with the national strategy of the road-sectors development;
- The Government should prioritize development of rural roads (tarmacking/murraming and construction of new ones). This will improve access to services, including health, education, social amenities, and markets and will also enable the tapping of rural potential for improved livelihood activities. This will further, improve the linkage between rural farming production with markets and thus ensure a more stable income for rural farmers/people;
- Construction of bridges as opposed to concrete slabs should be prioritized. Those already in-place should be replaced;
- Rural Road Infrastructure Fund should be established in each County, but with guidance from the National Government, to act as a means to mobilize funds for rural road development;
- There was the felt need for the construction of more health facilities, equipping and up-grading of the existing ones.

Other recommendations that arose include;

- Awareness creation on the importance of NHIF cards in financing healthcare for both the employed and unemployed;
- The Ministry responsible for water and sanitation together with relevant stakeholders should ensure safe and clean water for domestic use, for rural communities;
- Community policing should be strengthened and awareness created on its importance; and
- Mobile clinics should be explored as a way of health service delivery in vast/ASAL areas and should target specific days of the month (e.g. market days, auction days etc.).

Enhanced community participation in decision making on matters of infrastructure development is important. This is line with Article 232 of the Kenya Constitution which emphasizes citizen participation.

Chapter One

Overview

1.0 Introduction

The Kenya Vision 2030 recognizes the importance of infrastructure development as critical for socio-economic transformation. The Kenya Vision 2030 aspires for a country with modern metropolitan, cities, municipalities and towns with infrastructural facilities that meet international standards. For a long time, interventions in the road and transport sector have focused on upgrading and rehabilitation of the main transport corridors with the aim of facilitating regional trade and transportation, while also improving rural accessibility through the Roads 2000 programme financed by the Government and various Development Partners.

Rural road transport activities consist of physical movement of people and goods to designated points, along certain types of transport infrastructure, using different means of transport (animals, vehicles, carts, bicycles-boda boda etc). Poor rural infrastructure was identified under the Economic Recovery Strategy (ERS 2003-2007) as a major constraint to doing business. It was repeatedly cited as a necessity to improving the livelihoods of people in rural areas if the elements of availability, accessibility, affordability and quality are put into consideration.

The inter-relationship between cost effective transport and the development of livelihood assets; natural capital, human resources, social assets and financial capital is desirable. Social equity and equitable access to public services have been part of the nation's development agenda since independence. However, concerns have been raised on the extent of disparities between the rich and poor and inequitable distribution of public resources between individuals, regions and along gender lines. There are also rural-urban inequalities, income disparities within the rural areas themselves and within major cities and towns. Such disparities include issues of access to quality service that have been a major cause of social tensions in the country.

Whereas substantial attention has been placed on poverty alleviation, there exists a huge gap between the poor and non-poor in the entitlement to delivery of services. There also exists large disparities in incomes and access to education, health and to basic needs, including; clean water, adequate housing and sanitation. In addition, there exist other remarkable intra-regional, inter-regional and gender disparities in quality, accessibility, affordability and availability. These disparities become more pronounced among vulnerable groups such as people with disability, youth, people living with HIV and AIDS, orphans and elderly etc.

Levels of poverty are affected by a number of factors, and transport is a key element in enabling other factors such as health, education and trade to play a role in improving the welfare of members of the community. Efficient rural transport is, however, a milestone yet to be achieved. 'Efficient' in this context refers to how well the roads, pavements, footpaths that are built and rehabilitated, serve the local communities in terms of their quality and the quantity; do they serve the majority of the people? Do they exclude some people from use? 'Efficient' also refers to the 'means of transport' used, for example, aging vehicles in rural areas or animal transport such as donkeys, given that efficient transport is only complete with access to roads, pavements, footpaths and other means of travel. For example, roads, pavements and footpaths leading to most schools, health centres and markets, and also roads that link important towns or commercial centres, depending on the overall benefit the community derive from them. An area with no social amenities or commercial centres may be linked to a more established centre from where raw materials and other services can be obtained easily and affordably.

Better road transport infrastructure services contribute to improved productivity of business, households and Government services. The time spent traveling to service centres is often significant. When household connections are available and transport services are accessible, household members, particularly women and children, can engage in more productive activities. The expansion in quantity and improvement in quality of infrastructure services lowers costs and expands market opportunities for businesses. This contributes to increased investment and productivity which is essential for sustaining economic growth and access to essential services.

The means of travel used is also an important factor in the analysis of rural transport problems, and it is generally agreed that rural transport in most developing countries is very often restricted to animal, human transport (boda boda) and aging vehicles, which are limited. Motor vehicles are mostly utilised by those travelling long distances, or are reserved for official use by the police or health centre staff, if they are fortunate enough to be provided with these by the Government,

donors/sponsors and or NGOs. The importance of rural transport for development issues is therefore generally agreed upon. The problem lies instead in the solutions and interventions that are suggested to deal with these transport problems, or in some cases it is not the suggested solutions that are the problem, but rather the way that they are implemented.

1.1 Statement of the Problem

The need to travel, transport goods, access services from different destinations is an essential task associated with rural households. The role of the transport network in rural areas reflects the strength of the household's links with the wider economy.

Health systems are dependent on the quality of transport access for the delivery of services in the local area. Rural road transport accessibility problems cause isolation which is one of the interlocking dimensions of poverty. Transport in the rural areas relates principally to basic needs activities and is carried out mostly on foot or with aid of intermediate means of transport. Lack of access to health services particularly in emergency situations is probably one of the greatest worries of isolated rural households especially for parents and young children.

Basic health care is often available at community level through a nurse or community health care workers, however access to a doctor is limited and to a hospital even more so. Travelling to the nearest hospital may involve trips of several kilometres taking several hours, transporting a sick or injured person to hospital may involve carrying or moving the person in a wheelbarrow/ox drawn cart/handcart to the nearest motorable road, then seeking a lift from a passing vehicle.

Although various interventions e.g. roads 2000 programme, have led to improved accessibility, through reduction in non-motorable roads particularly in rural areas, the level of health care service un-accessibility is still unacceptable. Over, the years, the Government has been investing in the sector with limited mention of other rural access means like footpaths, footbridges and pavements which are mostly used in rural areas. Further, to date, there have been no adequate information and data on the level of accessibility of health care services in rural areas despite the increase in the number of health facilities constructed using CDF and other devolved funds.

1.2 Justification

A study by Levy (1996) examined the socio-economic impact of improvements to rural roads in Morocco. One of the study findings showed that there is a clear association between status of roads and improved access to education, health facilities, increased enrolment rates in rural schools, as well as increasing frequency of visits to health care services in addition to enabling the recruitment of professional personnel to staff schools and health facilities. Further, Allison (2005) quotes Blakemore (1999), Hargraves & Hadley (2003) and Probst, Samuels, Jespersen, et al (2002) who compiled research findings on rural transport in Philippines. The findings showed that rural minorities have more difficulty accessing healthcare than urban minorities. The findings cited inadequate transportation as one of the reasons for these difficulties.

In Kenya, according to the Service Provision Assessment Survey (2010), 41 percent of the people still do not have access to affordable health care. The most affected are the rural communities. The (MDGs) status report, 2010, indicates that reduction of child mortality, improving maternal health and combating HIV and AIDs, Malaria and other diseases are unlikely to be achieved by 2015. Additionally, the report states that 60 percent of people in Kenya live more than eight kilometres from a healthcare facility while a substantial percent (46.8) have no access to clean safe drinking water in the rural areas. Further, according to the report, there is a clear association between infant, child and maternal mortality rates, HIV and AIDs, and malaria and distances to health care services.

In view of the foregoing, however, there is very little information on factors hindering the reliability of the rural road networks used for accessing health services in rural Kenya. Further, to date, there has been no adequate information and data on the level of accessibility of services in rural areas despite the increase in the number of health facilities constructed using CDF and other devolved funds. Adequate information would make it possible to formulate evidence based policies for improved quality of life for all Kenyans. This will make it possible to realize the Kenya Vision 2030 aspiration of equity and affordability in health care.

Therefore, in the face of the urgent need to achieve MDG 4 on Reduction of Child Mortality, MDG 5 on Improving Maternal Health and MDG 6 on Combating HIV and AIDs, Malaria and other Diseases, the need to enable the transport sector to

take a holistic, health sensitive approach during planning and implementation of transport interventions and the need to realize the importance of sustainable access to health services, this survey is an important step with a view to informing policy on possible intervention measures in improving mobility in rural areas to enhance rural community access to health care services and other social amenities.

1.3 Objectives

Generally, the study sought to assemble data/information and experience that can provide key policy options for improved delivery of rural transport services. In order to improve the livelihood of Kenyans at the national and local levels, the assembled data/information and experiences will be aimed at providing information for the following specific purposes;

- Identifying the role rural road transport infrastructure play in improving access to health care services by rural communities;
- Enabling the transport sector to take a holistic, health sensitive approach in the planning and implementation of transport interventions;
- Determine the level of communities' involvement in decision making on rural roads development;
- Identifying major constraints facing Kenya in ensuring rural road transport infrastructure and services; and
- Proposing strategies that could ensure that rural road transport infrastructure and services are improved.

1.4 Report Outline

The report has five main chapters. The first chapter is the overview and is the introduction of the report. It gives the statement of the problem, justification and study objectives. The second chapter is the "Literature Review" and has important theoretical and empirical underpinnings. Further, it gives an overview of the literature with a view to highlighting the gaps to be addressed. The third chapter gives the "Research Design" and highlights on how the sample was arrived at, the research instruments, data analysis procedure and ethical considerations. The fourth chapter details the study findings with elaborate explanations while the last section gives policy recommendations. The Report also contains appendices consisting of analysis results for the six counties and research tools.

Chapter Two

Literature Review

2.0 Introduction

2.1 Theoretical Literature Review

The importance of infrastructure in support of economic growth has long been recognized. According to the World Development Report of 1994, the provision of infrastructure services to meet the demands of businesses, households and other users is "one of the major challenges of economic development." The report further cites reliable infrastructure services as an important consideration in investment decisions.

The catalytic role of infrastructure in poverty reduction and access to services received renewed recognition in the Millennium Development Goals that single out improvements in maternal health, reduction in child mortality, increasing access to water supply and sanitation service as explicit targets to be achieved by 2015. Other infrastructure services such as electricity, transport and telecommunications are indispensable for achieving the health, education, gender and income poverty goals spelled out in the Millennium Declaration of the UN General Assembly (UN Millennium Project, 2005).

Infrastructure services have strong and direct links to improved health outcomes. Water-related illnesses account for a very substantial burden of disease in the developing world, exacting high costs in terms of death, malnutrition, stunting, and reduced productivity (World Development Report, 1994). Electricity permits improved health service delivery in several ways: electrification of health facilities permits safe storage of vaccines and medication and modern energy sources permit substantial reductions in morbidity and mortality associated with indoor use of wood fuels for cooking. The mobility provided by accessible transport services has been shown to permit women and children better access health care services (Hutton et al., 2006).

Despite the widespread approval of the importance of good infrastructure in access to healthcare services, it is estimated that more than 1 billion people around the globe are without access to an all-weather road while access to these services varies widely across regions and between urban and rural areas (Hutton et al., 2006). The level of access is lowest in rural areas while the gap is most pronounced in Sub-Saharan Africa and Asia. Researches done in this area have underestimated the number of households without adequate services, as they have dwelt mostly on proximity to, or use of, a physical installation (e.g. a road) but fail to take into account the quality and reliability of the service that users actually obtain.

Social services, particularly health services, have been difficult to access especially for disadvantaged people living in rural areas due to the lack of a transport infrastructure, lack of fuel and poor road network (Nyamadi and Zibengwa, 2007).

2.2 Empirical Literature Review

Analyzing the effect of access to public infrastructure in Senegal, i.e. safe water and health facilities, on child nutritional status, Léandre (2007) found that access to safe water improves the height-for-age of the lowest (10th) quartile and the effect of health facilities is significant for the 10th, 25th, 50th percentiles at the national level. However, in rural areas, only health facilities have a positive and significant effect on child health. Using a quartile regression, Léandre showed that public infrastructure facilities are very important for the poorest household in rural areas. However, Léandre took into consideration only proximity without putting more thought on the access in terms of roads, footpaths etc. since this is a significant determinant of access. Further, he considered a sample of poor household without taking into consideration community traits which are likely to affect the level of access significantly.

Examining patient and practitioner perspectives on the influence of spatial barriers to healthcare access, Benjamin et al. (2010) employed the use of participants in a veteran's affairs health visit and a focused group discussion. The findings indicated that spatial distance is a significant factor for many rural veterans when seeking healthcare. The focused group discussion highlighted the negative impact of distance, economic considerations, geographic barriers, and specific medical conditions on access to care. Focus group processes enable participants to explore and clarify their views in ways that would be less easily accessible in a one to one interview. However, the sample used received the intervention of interest and thus highly likely to suffer selection bias translating to un-reliable results. Un-reliable results cannot be generalized and thus negating the importance of sampling. Further, considering

distance alone without interrogating the means of transport and the quality of the road surface is an oversight.

In a research on access difficulties to healthcare in India, Milind (2004) investigated the effects of geographical distance and socio-economic distance. In the research, Milind underlined the importance of geographic distance in a country like India with limited means of communication. According to the researcher, direct effect of distance of a given population from primary healthcare centre on the childhood mortality is not well documented in many countries. The findings showed that the effect of difficult access to health centres is more pronounced for mothers with less education. The same study also stated that distance from private hospitals does not affect the health parameters but the distance from public health centre does. Those who live in remote areas with poor transportation facilities are often removed from the reach of health systems.

An exploratory study on transport and health in Suba District, Kenya using participatory appraisal tools found out that, the main barriers to accessing health institutions in the District are lack of transport services (including boat services), lack of money for transport services when the services are available, and lack of specialized affordable method of carrying patients who are not able to walk. People also face risks walking to health institutions especially in hilly areas. Walking across mountainous terrain with a sick person was reported to be a burden. Like any other qualitative study, the research suffered the problem of generalizability (Maganya et al., 2006). Further, random sampling is valid if the complete list of all population members is well documented. In this case, cluster sampling would have been the best as the frame with all Suba District population was not known.

Adding a new dimension, Nyamadi and Zibengwa (2007) investigated how transport interventions could improve travel of the health workers in a poor transport served area. The study was significant as it related mobility to access of health services in terms of quality of service and availability of health workers at the health post. The researcher employed the use of purposive sampling. The findings of the research revealed that outreaches reduce the burden of transport of the poor people by up to 90% in terms of cost. The waiting time is also reduced in accessing health care.

Transport related constraints contribute to as much as 75% of the challenges of undertaking outreaches. Further, the results indicated that health and transport cost constitute the major household expenditures. Health was the main reason for women to travel outside the area. Improved transport systems were found to help in increasing the frequency of health workers to perform outreaches and reduce the travel time by a half. Although the findings add to the existing knowledge on transport and access to services, purposive sampling is likely to affect the validity and reliability of the results as selection is a preserve of the researcher and thus may fail objectively.

Musa 2002, in his study pointed out that construction of feeder roads providing motorized transport that connect 45 villages in the Darfur region of Sudan are reported to have measurably impacted on community health, such as a rise in the immunization of children. The study found that road provision enabled the equipping and supply of health outlets, and that access to services and technologies was further improved by a concurrent revolving drug fund. It is also apparent from this research that while women's travel time to health faculties was reduced in some locations, in others women continued to contend with a full day's journey to their nearest health centre

Wettasasinghe and Pannila, 2002 in a study conducted in the village of Vanathavillu in the north-western Province of Sri Lanka illustrates that even where rural communities are better served with intermediate and motorized transport and a paved road, transport of those who are too ill to travel by bus is prohibitively costly. Further to this is the problem of gaining access to medical staff once at the health facility. This is due to the low ratio of health workers to the population served. Villagers therefore need to travel early and queue for many hours if they are to have any chance of being seen by qualified medical staff.

For HIV/AIDS patients undergoing treatment, the costs of transport to health facilities represents an extreme burden on financial resources already under strain from reduced income and productivity of patients. In Chad, a study revealed the costs of transportation using public services to be the second greatest expenditure for AIDS patients after that of medicines. Problems of mobility combined with poverty have been identified as directly disrupting anti-retroviral treatment among HIV-positive people in rural Zimbabwe. This illustrates that mobility is a central issue in achieving the millennium development goal 6 ("combat HIV/AIDS, malaria and other diseases"). Indeed, McCoy et al (2002) in their report on the implementation of 18 Prevention of Mother to Child (HIV) Transmission (PMTCT)

services in South Africa identify the lack of affordable transport and long distances between pregnant women's homes and health facilities to be a major challenge to continuity of care and monitoring of maternal and child health. This further highlights the crucial role of transport in the maintenance antiretroviral therapy and other drug regimens such as directly observed treatment short-course for tuberculosis (DOTS).

Martin et al (2002) details that women experience better access to health services and improved service provision by outreach workers in areas of rural Bangladesh that are near all-weather roads. This study highlights the difficulty of access to emergency obstetric care and the lack of safer motherhood services at the village level, which are further complicated by cultural issues that mediate female mobility. Poor women are therefore less likely than their male relatives to have direct contact with health care providers and as a consequence, receive less accurate and "remote" diagnosis via symptom-reporting by male relatives, rather than face-to-face consultation and examination by qualified health professionals.

Van de walle, D., 2000 in his paper "Choosing Rural Road Investments to Help Reduce Poverty" examines how rural road investment projects should be selected when the specific objective is taken to be poverty reduction. A key problem addressed is that an important share of the benefits to the poor from rural roads cannot be measured in monetary terms. The document analyses the information constrains for the appraisal and selection of projects and provides an alternative method. The author states that this approach holds the hope of building capacity and is participatory; it extracts local information that may not be readily available to the central government; and it appears to be feasible because it relies on local authorities participating in the appraisal of subprojects. Therefore his paper presents a method of generation of information for the evaluation of transport projects.

Shehu et al. (1997) in rural north-western Nigeria identified vehicle and fuel shortages, combined with a lack of willingness of owners and drivers to transport women for affordable fares, to contribute to delays in transportation to appropriate health facilities in cases of obstetric complications. In response to this, the multi-disciplinary research team devised an intervention to train and sensitize drivers belonging to a local transport union to the needs of women requiring transport for emergency obstetric care. In addition to this, a revolving emergency fuel fund was established. The outcome of this intervention-based research was that drivers began to transport acute obstetric cases to health facilities without securing prior payment and fares charged were considered to be reasonable by patients. Although the study was post hoc, there was evidence to suggest a marked reduction in delays between the onset of complications and obtaining the necessary transport to an appropriate health facility. The study concluded that emergency medical transport can be markedly improved without high investment in designated ambulances and drivers. Although revolving fuel funds tend to become depleted by eventual misuse, commercial drivers at the community-level were shown to be successfully mobilized to provide timely and affordable transport crucial to reducing the delay in obtaining care in obstetric emergencies.

The intricate relationship between health and mobility influences is influenced by many other factors. It is assumed that by thought-provoking the rural economy for example a greater proportion of the population are able to afford preventive and curative health care Vlassoff et al (2004) as well as improving nutrition and access to health information. Research suggests that this process begins by enabling rural people to access technological inputs to raise agricultural productivity, increasing livelihood options by convalescing urban-rural linkages with wage-labour opportunities and opening up urban markets to rural producers (Musa 2002; Richards 1984; Thapa et al 1995).Whatever the mechanisms might be, in Bangladesh it is reported that while maternity services are provided free by the state, 29% of births at the upper end of the economic scale are delivered by a qualified attendant, compared with only 12% of those occurring in the poorest strata of society. The report identifies the cost of transport and travel to maternity facilities along with associated expenses, such as food, to daunt poorer rural women from giving birth in designated health centres (ICDDR, B 2005).

2.3 Overview of the Literature

Extensive literature on health seeking behaviour determinants in Kenya by different authors is available. The studies have been in agreement in terms of the variables to be considered. Some have used the World Health Organization agreed on variables while others have used self opinionated variables. All these are agreed thresholds which are valid and reliable. However, the different studies have differed significantly in terms of the design, the data used and the approach.

Using a quartile regression, Léandre (2007) took into consideration only proximity without putting more thought on the access in terms of roads, footpaths etc., since this is a significant determinant of access. Further, he considered a sample of poor household without taking into consideration community traits which are likely to affect the level of access significantly. Benjamin et al. (2010) employed the use of a sample which had received the intervention of interest and thus highly likely to suffer selection bias translating to un-reliable results. Un-reliable results cannot be generalized and thus negating the importance of sampling. Further, considering distance alone without interrogating the means of transport and the quality of the road surface is an oversight.

Maganya et al., (2006) on the other hand used simple random sampling which is only valid if the complete list of all population members is well documented. In this case, cluster sampling would have been the best as the sampling frame with all Suba District population is not known. Adding a new dimension, Nyamadi and Zibengwa (2007) investigated how transport interventions could improve travel of the health workers in such a poor transport served area using purposive sampling. Although the findings adds to the existing knowledge on transport and access to services, purposive sampling is likely to affect the validity and reliability of the results as selection is a preserve of the researcher and thus may fail objectively.

In all the past studies done, there is very little information on the level of community involvement in Government projects and those done using devolved funds which is an important Government strategy for long-term sustainable service delivery.

2.4 Conclusion

Most of the studies that have been discussed in this chapter reveal that improved and efficient transport infrastructure play a key role in the economy. Transport infrastructure has got a multiplier effect and thus determines the progress of a country. The results further confirm the relationship between the type or state of the transport infrastructure and accessibility to a health facility. Key findings from the studies indicate that;

- Provision of feeder roads with motorised transport system impact on community health through a rise in child immunization;
- Prohibitive travel costs and long queues resulting from low ratio of qualified medical

Chapter Three

Methodology/Research Design

3.0 Introduction

This Chapter presents the stages followed in data collection (acquisition), how sampling of the households in the survey was done and the sampling frame. The Chapter further gives the research design, target population, instruments for analysis, data collection and lastly data analysis.

3.1 Research Design

For the Government to develop a strategy for enhancing health services access among the rural women, it makes sense to include the views of the rural people. This study employed the use of both qualitative and quantitative approaches because they complement each other. The purpose of the two approaches was, to help resolve potential contradictions, and develop integrated data sets which combine both qualitative and quantitative data. In this way policy makers and analysts will have a much richer data set, and greater confidence in the emerging policy messages and strategies.

Preliminaries for the study started with the preparation of the study instruments, training of the research assistants and coordinators. This was followed by pre-testing of instruments in 2 counties- 4 clusters per County: Kajiado, representing Arid and Semi-Arid Areas; and Nyeri representing high agricultural potential areas. The main objective of the pilot study was to pre-test the survey instruments so that in the event of any challenges/deficiencies, they could be addressed before the Main study. Specifically, it was aimed at improving the main study's quality through re-designing parts of the instrument in order to validly and reliably conduct the survey.

The pilot study provided only limited information on the sources and magnitude of variation of response measures. As expected, the pilot study provided adequate data on variability which helped in determining the number of participants to include in the main survey for each FGD. In view of the foregoing, 12 participants for each FGD and 4 key informants was agreed on as being enough to capture all pertinent issues.

For the main survey, 4 counties were selected which included Kwale, Makueni, Siaya and Laikipia. In each County, five clusters (KNBS structures) were selected and from which 12 representatives of households were identified to represent the cluster. There were 2 sets of structured questionnaires: an FGD schedule for the community and key informants' schedule for Roads Officer (RO)/Roads Engineer (RE), Health Personnel, Provincial Administration and a Women Representative. The questionnaires were designed to capture both qualitative and quantitative responses.

3.2 Target Population

The target population was drawn from counties in different ecological zones. The following counties were selected for the study namely; Kwale, Garissa, Siaya and Makueni. Due to security concerns, Garissa County was replaced by Laikipia County and more specifically Laikipia North district which has almost similar ecological characteristics with Garissa. Each County was picked for the study after considering both ecological and regional consideration. Siaya represented high agricultural areas of western region in addition to being a Millennium District, Makueni represented moderate potential while Kwale was selected due to its aridity (lower areas) and moderate highland potentiality in addition to being a social budgeting pilot District. Laikipia County was selected to represent ASAL and pastoral communities.

A District where Millennium Development Goals are mainstreamed

A District with social budgeting issues-budgeting for the social sector

3.3 Sample Size

The study used existing Kenya National Bureau Statistics (KNBS) structures (clusters). Five clusters were selected from each County with inclination to rural clusters. In each cluster (a district within the county with the major characteristics of the area), twelve (12) representatives of households were selected to represent the community in that cluster (considerations for age, sex and persons with disability were one of the set criterion). A structured questionnaire was administered to 12 persons through a Focused Group Discussion session. In addition to the household representatives, 4 key informants provided more information on the role of rural roads transport infrastructure and access to health services.

FGD Session in Kajiado

3.4 Sampling Technique

Two stage sampling was used in the study. In the first stage, cluster sampling was used to sample clusters in each county because it is economically efficient, has a higher scope and takes shorter periods as compared to a complete count. Then, Simple Random Sampling (SRS) technique was used to select respondents for each cluster. This ensured that all members in the clusters had an equal chance of inclusion in the sample hence giving reliable and unbiased results. Men and women had equal representation.

3.5 Data Collection

FGD session in Makueni

The study, administered questionnaires with both structured and non structured questions. The respondents were taken through the questionnaires by the facilitator while the notes taker recorded the responses. Probing for more information was done to ensure quality of information.

Data for this study was obtained from both primary and secondary sources. The secondary sources were collected from the library, internet and other relevant government departments. Primary data was collected by use of questionnaires. There were two sets of instruments: an FGD for community interview and semi-structured questionnaire for key informants. Key informant interviewees included Roads Officer (RO)/Roads Engineer (RE), Women Representative, Health Personnel and Provincial Administration in every county. In this case structured and open ended questions were used (see attached Appendices).

3.6 Data Analysis

Statistical Package for Social Scientists (SPSS) Version 17 and STATA Version 10 were used to analyze the data to obtain descriptive statistics such as frequencies and percentages and draw inferences for hypothesis tests. This enabled the study to make inferences from the sample about the relationships between rural road transport infrastructure and access to health services. According to Mubazi (2009) after receiving all the required data, the first step is checking and editing for completeness, accuracy and uniformity to eliminate any discrepancies and recording mistakes. The primary

data was then sorted accordingly. Tables and pie charts by SPSS presented summaries of the data. Non-parametric methods; Logistic regression and one sample t-tests, were used in case of Bivariate analysis.

3.7 Ethical Considerations

The Ministry of State for Planning, National Development and Vision 2030 sought authority from Kenya National Bureau of Statistics to conduct the study. The study was conducted professionally and good morals were fully observed. Confidentiality, voluntarily responding to questions and time management by data collectors were observed. As the study had human beings as participants, research ethics advocate for protection of human participants as well as ensuring justice is done all the time (Alvesson and Skoldberg, 2000). This was assured.

The facilitator informed the participants of anticipated research benefits i.e. how the research will be of benefit to them individually and as a community before the onset of the discussions. This was made possible through the inclusion of a consent form in the introduction part of the FGD schedule to guide the facilitator. The research participants were allowed to make an informed consent on whether to participate. The participants were also informed that the information/data collected will be used solely for the research work and would be handled confidentially.

3.8 Challenges Faced

This part presents the challenges faced during the survey in the six (6) Counties and they included;

- Poor means of transport: Mostly boda bodas (bicycles) were used by the participants which meant lateness and tiredness during deliberations;
- Language barrier: Poor understanding of Kiswahili and English for some of the participants making it difficult to communicate and get a good response from each of the participants;
- Poor road infrastructure: In some places roads were non existent /or in poor state and therefore finding your way to a place (e.g. FGD scheduled location) was a problem;
- Weather conditions: rainy conditions were experienced during the period of the study. In some instances participants were requesting to be interviewed in their own homes. This was impossible given that FGD methodology;
- Safety and security issues (e.g. cattle rustling, wild animals like in Laikipia)was a challenge, this in some cases affected respondents coming to the meeting venue on time as scheduled;
- Cultural barriers: In some communities women were afraid to contribute in the FGDs e.g. Kajiado;
- Vastness and topographical issues: It took more time before one could reach the meeting point thus posing a time barrier; and
- Communication constraints: Telephone

Chapter Four

Study Results/Findings

4.0 Introduction

There are many diseases (e.g. malaria, HIV and AIDs, TB, Pneumonia, etc., refer to Table 1) that afflict people in the six (6) Counties. These have varying transport needs. The transportation need coupled with the need to seek medical attention at health facilities beyond the locality and the severity of an ailment determines the behaviour to seek health care. Health-related transport needs, be they within the village or to healthcare institutions, affect the sustenance and livelihood related transport tasks that household members especially women undertake.

4.1 Results

Common Diseases

The findings indicated that Malaria was the most common ailment in all the counties followed by HIV and AIDs, Pneumonia and TB. In Kwale, Bilharzia, a water bone disease was said to be very common due to water contamination while in Nyeri, Arthritis was found to be common among the elderly as many wake up early to till their farms and harvest arrow roots. Brucellosis and Trachoma were widespread in Kajiado and Laikipia counties while Diabetes, Typhoid and Amoeba were more pronounced in Makueni County. In Siaya, HIV and AIDs was reported to be more pronounced and many homesteads had orphaned children (***See Appendix A***).

> *"...ukimwi ilinyang'anya sis watooto..."*
> *(HIV and AIDs has snatched away our children...)*
> *Participant in Siaya*

Table 1: Common Diseases in the Six (6) Counties

Disease	%
Malaria	100.0
HIV and AIDs	59.3
Typhoid	59.3
TB	55.6
Pneumonia	55.6
Amoeba	22.2
Diabetes	22.2
Jigger infections	14.8
Brucellosis	14.8
Arthritis	14.8
Bilharzia	11.1
Trachoma	11.1
High Blood Pressure	11.1
Cancer	7.4
Diarrhoea	7.4
Eye problem	7.4
Cholera	3.7
Trachoma	3.7
Skin Disease	3.7
Scabies	3.7
Ringworms	3.7
Asthma	3.7
Epilepsy	3.7

Reasons for Visit to Healthcare Facility

Community members visited health facilities when sick although a substantial 33.3 percent said some of their relatives did not seek health services citing economic problems, distance to the health facilities, retrogressive cultures, lack of facilities and equipment (e.g. drugs, labs, staff etc.) and preference for herbal medicine as some of the contributing factors. Further, it was established that the majority (96.3 percent) sought health care services from Government facilities while 63 percent sought the services from Herbalist/Traditional Birth Attendants (TBAs)/Traditional Healer while 3.7 percent sought services from Private hospitals (this was attributed to perceived high service costs).

Table 2: Seek Health Services? Why not? Where?

Area of interest	Category	%
Ability to visit a health facility	Yes	100.0
	Some don't	33.3
Reasons for not visiting health facility	Prefer herbal medicine/self prescription	66.7
	Persistent illness	33.3
	Economic Problems	22.2
	Discouraging services at the hospitals	22.2
	Cultural factors	11.1
	Distance to Hospital	11.1
Where services are sought	Government Hospital	96.3
	Herbalist/TBAs/Traditional Healer	63.0
	Sects*	18.5
	Mission hospitals	14.8
	Private Hospitals	3.7

* Churches, Cults and other believe.

Determinants of Health Seeking Behaviour

During rainy season, it was reported that most communities are unable to access health care services as most roads have no bridges and the concrete slabs are swept away. Other than roads, communities cited distance as the most important determinant of their health seeking behaviour. Insecurity in roads, mostly while walking to access services, was also pointed out as a determinant.

Various ailments in the sampled counties require transportation at different periods. Severity of the illness and/or ability of the patient to walk are key determinants. Accessibility conditions (e.g. distance, terrain, road conditions during rainy season etc.) are major influences on health related transport demand or need. In areas like Dumbule, Kinango, Tiwi, and Msambweni where distances to health facilities are relatively long, access to health facilities on motorbikes the most common mode of transport is expensive. Access is further limited in Kinango where the presence of wildlife in the adjacent Shimba Hills National Park restricts movement. Women with children are more vulnerable and provision of some form of motorized transport would be appropriate.

In Nyeri and Makueni counties, some areas reported in the various groups that difficulties in accessing health care services due to prevailing topographical conditions were severe. Thus, the use of motorized means of transport is high. Preference for use of certain types of transport (e.g. the bicycle and the motor cycle etc.) was noticeably high in the six counties; an indication of the need; for safety awareness on these modes of transport and/or better location of health facilities.

Further, the impact of other factors which include income, information on the use of National Health Insurance Fund (NHIF) cards, information on facilities constructed using devolved funds and the quality of health care services should not be underestimated. The significant interrelationship between the various aspects and the nature of casual relationship is important for holistic healthcare provision.

As witnessed and reported in Siaya County, the community still have a strong burial custom and that the dead have to be transported to their home for burial. This significantly enhances the continual demand for transport services. In Kinango, due to religious believes-the need to bury a dead body the same day, the dead have to be positioned in motor bikes as if alive and transported home to cut down on transport cost.

Child bearing always does need some form of transport, especially where the travel distance or effort required to get to a health facilities is significant. This is further amplified by the need for hospital-aided births as opposed to those aided by Traditional Birth Attendants (TBAs) if MDG 5 is to be realized by 2015. Although the adoption of the later is discouraged, it is still practiced in many parts of the country. In Kinango for example, one of the participants was a self-confessed TBA saying she has been assisting women for years.

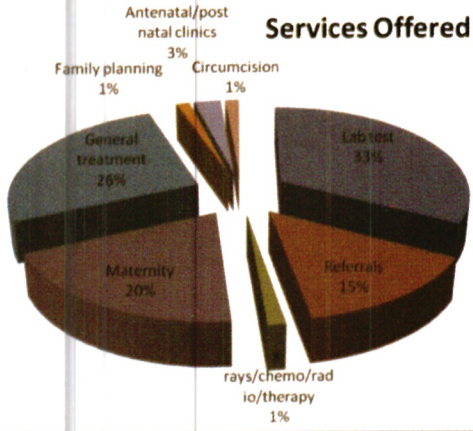
Services Offered

Most of the facilities were offering lab tests and general treatment (33 percent and 26 percent respectively). Maternity services were not as common as expected while family planning, X-ray services and circumcision were at the lowest level. In the available facilities, participants reported inadequacy due to long queues, lack of courtesy from facility staff and lack of key equipment as key impediments.

> *"....Si mlileta dawa...ndio maana hatuzai"....*
> *(You brought us drugs...that is why we can't give birth)*
> *Participant in Laikipia North*

"....Kabichi na maharage ndio twalipia?"
(We pay for cabbages and beans?)
Participant in Tiwi, Kwale

Figure 1: Services Offered



Distance to Healthcare Facility

In terms of distance to the nearest health facility, it was reported that on average, community members were covering 5.07km. Community members from Kwale trekked for an average of 4.1 km, while those in Laikipia walked for about 6 km on average. Makueni County members were the most affected on average covering 6.7 km while those from Nyeri, Kajiado and Siaya were covering an average of 4.4 km. On average, communities took 86 minutes to get to a health facility with others taking more than 180 minutes. In case one is referred, it takes an average of 128 minutes to get to the referral hospital (***See Appendix A***).

The time taken to a referral hospital is far too high compared to the severity of some ailments (e.g. delivery complications etc.). This translates to possibility of death before getting to the referral.

Cost of Transport

Despite the long distances to the facilities, communities reported to walking depending on the severity of the ailment or using a motor bike. On average, it costs Kshs. 261 on a motorbike and Kshs. 590 on a vehicle to get to a health facility. In Siaya, a motor bike costs and average of Kshs. 100 and Kshs. 120 in a vehicle. In Makueni, a motor bike costs and average of Kshs. 300 and Kshs. 420 in a vehicle while in Nyeri, a motor bike costs and average of Kshs. 100 and Kshs. 95 in a vehicle. In Kwale, a motor bike costs and average of Kshs. 150 and Kshs.350 in a vehicle. Such costs compared to the high cost of living, un-employment and abject poverty among other factors adversely affect the probability of seeking quality health service. A t-test of the mean travel cost and a dollar per day (poverty threshold according to the World Bank) found out that travel cost surpasses the expected living cost significantly ($p<0.05$).

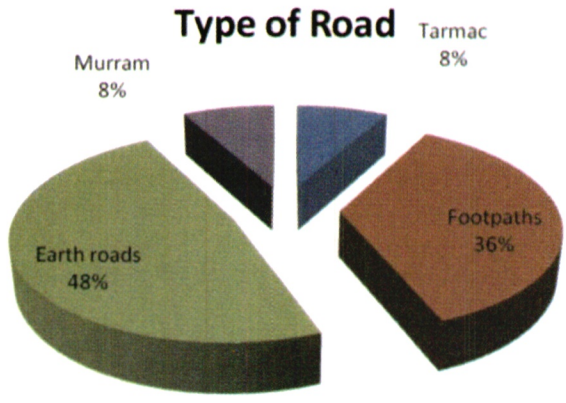
This means that households cannot afford to finance the travel cost to access healthcare at the expense of their welfare.

Types of Roads

Communities reported the use of roads in accessing healthcare (100 percent). Mostly, earth roads (88.9 percent) are used followed by footpaths (66.7 percent) with tarmac and murram roads receiving the lowest response (14.8 percent). Both earth roads and footpaths are impassable during rainy season and dusty during dry season. Such conditions aggravate ailment conditions. To get to the main road in order to board a vehicle/motorbike, community roads-earth roads, are the most common. Some of the communities are quite far from the main roads such that many would take slightly above an hour to access (M=74 minutes: ***See Appendix A***). Laikipia and Makueni Counties are the most affected.

"....Mnaenda Wote? Hamtarudi..."....
(Are you going to Wote? You will not come back)
Participant in Makueni-referring to the poor state of the road

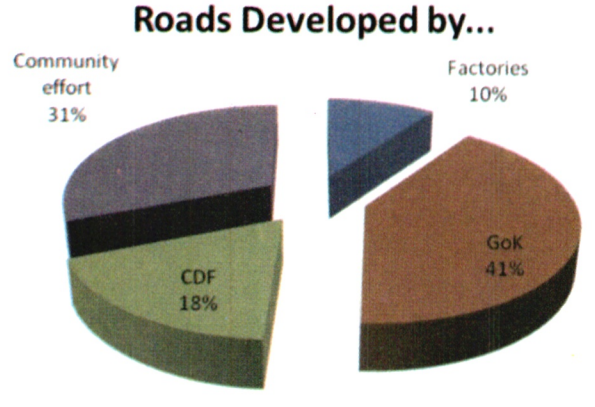
Figure 2: Type of Roads



Community Involvement in Road Development Decision Making

Communities reported non-involvement in road development decision making (92.2 percent); the only involvement being as casuals or when a road project is likely to encroach on a private piece of land. However, these are occasional and take place after more than two years as roads are maintained/developed when need arises. This is expected to change with the full implementation of the Roads Sector Investment Plan (RSIP) which proposes continuous regular maintenance. Further, both Government and community efforts were lauded as the only viable roads development initiatives. Roads developed by factories and those funded by CDF were said to be dependent on occasions/seasons. Some constituencies (e.g. Mathira) were said to have excavators purchased through CDF for local roads development upon request.

Figure 3: Roads Developed by...



Community Proposed Recommendations

Proposing strategies to mitigate the above, communities proposed;

- Tarmacking or murraming of roads in addition to new roads constructions and erecting bridges as opposed to slabs;
- Other than roads, communities felt the need for the construction of more health facilities and equipping existing ones;
- Awareness creation on the use of NHIF cards in financing healthcare as the majority thought it was only meant for the employed; and
- Community participation in decision making on matters affecting their welfare.

Figure 4: Recommendations by the community in rural road infrastructure

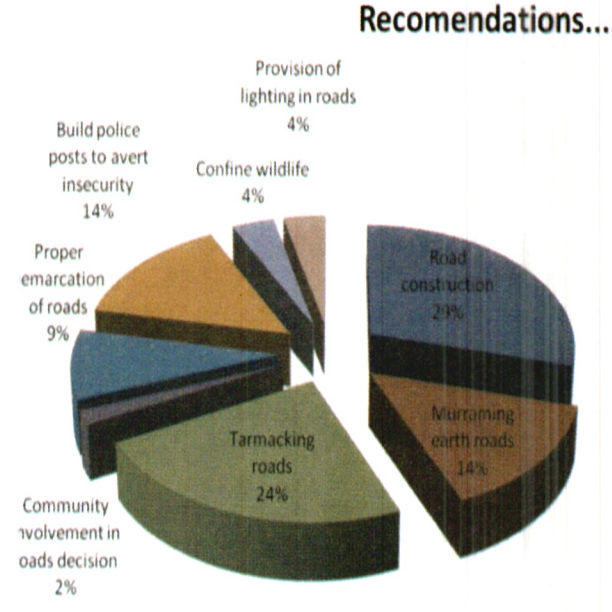
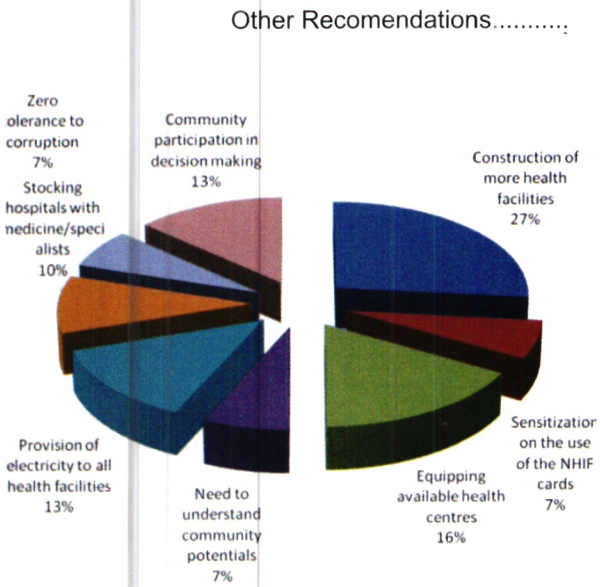


Figure 5:
Other Recommendations by the community



4.3 Conclusions

These results correlate well with those from other studies done on access to health care services in Kenya. In terms of the research objectives, the findings supported the proposition that the likelihood that a household is likely to seek health care service is related to household income, distance to the health facility, the terrain, means of transport available and the kind of services offered.

Chapter Five

Policy Recommendations

5.0 Introduction

This Chapter presents the conclusions and recommendations as drawn from the data analyzed on rural road transport infrastructure and access to health services, a case study for Kwale, Siaya, Makueni and Laikipia counties as well as pilot study results from Nyeri and Kajiado Counties. This information is useful in informing measures/strategies to enhance healthcare access in rural Kenya. The Chapter bases the conclusions and recommendations from the objectives of the research study as was outlined in Chapter 1.

5.1 Conclusions

The study establishes an important linkage between road infrastructure and the access to health services by the rural population. In summary, it is observed that the absence of interconnectivity and poor road surface quality significantly contributes to the ability of rural people getting to health facilities in addition to other factors such as distance. To be more specific, the data from the surveyed Counties illustrates that there is a close link between road connectivity, surface quality of roads and accessing the nearest health centre in the rural areas.

All in all the study findings demonstrate that lack of rural connecting roads and bad surface quality roads hinder access to health facilities by discouraging people from seeking health services and the few who seek, have to incur high costs of comfortability by hiring vehicles and motor bikes to get the sick to hospital through impassable roads. Dusty roads during dry weather and muddy roads during rainy seasons make it difficult for the people to get to health facilities. Eight kilometres of road takes two hours of walking while those who are critically ill cannot walk through the mud to a health facility, thus some of the people prefer to take herbal medicine or buy drugs over the counter after self prescription.

Provision of rural roads and good surface quality roads alone is not enough to ensure that rural people gain /benefit as much as they can, increase in the number of medical staff would also aid to reduce the long queues in health centres.

5.2 Recommendations

It is important to realize that infrastructure development, particularly rural roads and especially road surface quality and interconnectivity is significant. If women and children could access health facilities in good time and with ease, maternal health will improve as well as reduction in child mortality and it will be easy to access anti-retroviral drugs and treated nets among other treatments.

Below are some recommendations for the consideration regarding the development of rural road to facilitate access to health services:-

Rural Road Infrastructure

- Consider developing a strategy of connecting rural access roads to main roads in conjunction with the national strategy of the road-sectors development;
- Prioritize development of rural roads (tarmacking/murraming and construction of new ones). This will improve access to services, including health, education, social amenities, markets and will also enable the tapping of rural potential for improved livelihood activities. This will further, improve rural farming production in linkage with markets and thus ensure a more stable income for rural farmers/people;
- Rural Road Infrastructure Fund should be established in each County, but with guidance from the National Government, to act as a means to mobilize funds for rural road development;
- Bridges and concrete slabs should be constructed and be well maintained especially before onset of the rainy season.

Provision of Quality Health Care

- Construct more health facilities, equip and up-grade the existing ones;
- Designate mobile clinics for health care service delivery in vast/ASAL areas. Specific days of the month (e.g. market days, auction days etc.) shou be targeted;
- Health personnel should be deployed to r health facilities to ease the long queues witne in these facilities;

- Health facilities in rural areas should be equipped with sufficient medicine.
- Security
- Build more police posts and strengthen community policing initiative in rural areas to avert insecurity;
- Provision of street lights on major rural roads to enhance security during the night; and
- Wild life should be confined in game parks and reserves to avoid endangering human beings.

Others;

- Create awareness on the importance of NHIF cards in financing healthcare for both the employed and unemployed;
- Zero tolerance to corruption in health facilities should be supported;
- Provide safe and clean water for domestic use, especially for rural communities; and
- Enhance community participation in decision making on matters of infrastructure development.

6.0: References

Levy, H. 2004 "Rural Roads and Poverty Alleviation in Morocco. Scaling up Poverty Reduction: A Global Learning process and Conference, Shanghai May 25-27, 2004

World Development Report 1994 Infrastructure for Development, New York, Oxford University Press, June 1994

Hutton, G., E. Rehfuess, F. Tediosi, and S. Weiss. 2006. "Evaluation of the Costs and Benefits of Household Energy and Health Interventions at Global and Regional Levels." Paper prepared for World Health Organization, Geneva

Léandre, B. (2007). Child Malnutrition in Senegal: Does access to public infrastructure really matter? A Quartile Regression Analysis. Job market Paper

Benjamin L. S. et al. (2010).Rural Veteran Access to Healthcare Services: Investigating the Role of Information and Communication Technologies in Overcoming Spatial Barriers [Online]: Available: http://perspectives.ahima.org

Milind, D. (2004). Socio-economic inequality and its effect on healthcare delivery in India: Inequality and healthcare. Electronic Journal of Sociology, ISSN: 1198 3655

Maganya, J, Odero, K and Munguti, K. (2006).Transport and Health: An exploratory study of Suba District.

Nyamadi, V. and Zibengwa, E. (2007). A Study on the Impact and Replicability of Community Ambulance Infrastructure on Health Access of Disadvantaged Groups In Rural Zimbabwe. A Study Submitted to the International Network Research Programme on Mobility and Health.

Alvesson, M. and Skoldberg, K. (2000). Reflexive methodology: new vistas for qualitative research. London: Sage.

The Kenya Vision 2030, Government of Kenya.

Roads Sector Investment Plan, Government of Kenya.

MDGs Status Report for Kenya, 2010, Government of Kenya.

7.0 Appendices

Appendices A: Analysis per County

		County					
		Kwale	Laikipia	Makueni	Siaya	Kajiado	Nyeri
		%	%	%	%	%	%
Types of hospitals	GoK	100.0%	100.0%	100.0%	100.0%	66.7%	100.0%
	Private Hospitals	40.0%	40.0%	80.0%	40.0%	33.3%	100.0%
	NGOs					33.3%	
	Herbalist/traditional healers		40.0%		20.0%	33.3%	25.0%
	Mission hospitals			20.0%		100.0%	75.0%

Services offered	County					
	Kwale	Laikipia	Makueni	Siaya	Kajiado	Nyeri
	%	%	%	%	%	%
Lab test	100.0%	100.0%	80.0%	100.0%	66.7%	100.0%
Referrals	80.0%	20.0%	20.0%		100.0%	50.0%
x-rays/chemo/radio/therapy	20.0%					
Maternity	60.0%	80.0%	60.0%	40.0%		75.0%
General treatment	100.0%	100.0%	80.0%	80.0%	33.3%	25.0%
Family planning					33.3%	
Antenatal/postnatal clinics					66.7%	
Circumcision					33.3%	

Reasons for in-adequacy of Health facilities	County					
	Kwale	Laikipia	Makueni	Siaya	Kajiado	Nyeri
	%	%	%	%	%	%
Long queues	100.0%	20.0%	80.0%	80.0%		75.0%
No courtesy personnel/unfriendly	40.0%			40.0%	33.3%	25.0%
Lack of key equipment/Labs	40.0%	40.0%	80.0%		100.0%	50.0%
Courtesy Personnel		100.0%	40.0%	60.0%	33.3%	25.0%

Recommendations	County					
	Kwale	Laikipia	Makueni	Siaya	Kajiado	Nyeri
	%	%	%	%	%	%
Road construction	80.0%	20.0%	80.0%	60.0%	33.3%	100.0%
Murraming earth roads	40.0%	80.0%		20.0%		33.3%
Tarmacking roads	40.0%	40.0%	100.0%	80.0%		
Community involvement in roads decision				20.0%		
Proper demarcation of roads	40.0%				100.0%	
Build police posts to avert insecurity	20.0%	100.0%	20.0%		33.3%	
Confine wildlife		20.0%			33.3%	
Provision of lighting in roads			20.0%			33.3%

Community recommendations	County					
	Kwale	Laikipia	Makueni	Siaya	Kajiado	Nyeri
	%	%	%	%	%	%
Construction of more health facilities	60.0%	33.3%		100.0%	100.0%	66.7%
Sensitization on the use of the NHIF cards	20.0%					33.3%
Equipping available health centres	60.0%		25.0%	100.0%		
Need to understand community potentials			50.0%			
Provision of electricity to all health facilities			75.0%			33.3%
Stocking hospitals with medicine/specialists	20.0%		25.0%		100.0%	
Zero tolerance to corruption			50.0%			
Community participation in decision making	40.0%	33.3%			100.0%	
Issues based leadership	20.0%	66.7%				66.7%

How much do you pay for the services? (In Kshs.)

County	Mean
Kwale	110.00
Laikipia	50.00
Makueni	20.00
Siaya	60.00
Kajiado	100.00
Nyeri	50.00
Total	53.50

How far are you (Kms) from the nearest clinic/Dispensary/health centre/hospital etc.?

County	Mean
Kwale	4.10
Laikipia	6.00
Makueni	6.70
Siaya	4.40
Kajiado	4.67
Nyeri	4.25
Total	5.07

How long does it take you to get there? (In minutes)

County	Mean
Kwale	90.00
Laikipia	78.00
Makueni	48.75
Siaya	144.00
Kajiado	75.00
Nyeri	67.50
Total	86.40

How long does it take you to get to the referral hospital? (In minutes or Hours)

County	Mean
Kwale	49.00
Laikipia	157.00
Makueni	126.00
Siaya	222.00
Kajiado	60.00
Nyeri	60.00
Total	128.26

County		How much do you pay? (In Kshs.)	How much do you pay? (In Kshs.)	How much do you pay? (In Kshs.)
Kwale	Mean	366.67	150.00	200.00
Laikipia	Mean	1825.00	566.67	
Makueni	Mean	420.00	300.00	200.00
Siaya	Mean	120.00	100.00	125.00
Kajiado	Mean	1050.00		
Nyeri	Mean	95.00	100.00	50.00
Total	Mean	590.43	261.54	157.14

How long does it take you from your home to the main road? (In Minutes)

County	Mean
Kwale	58.00
Laikipia	126.00
Makueni	96.00
Siaya	35.00
Kajiado	30.00
Nyeri	75.00
Total	74.37

Appendices B: Study Team

No	Name	Role
1.	Katherine Muoki	Quality Controller & Overseer
2.	Stephen Odhiambo	Quality Controller
3.	Eliana Shiroko	Quality Controller
4.	Daniel Mwaura	Team Leader, Data Collection, Analysis and Report writing
5.	Samuel Kimote	Protocol, Team Leader, Data Collection, Analysis and Report writing
6.	Mary Karumba	Data Collection, Analysis and Report writing
7.	Priscillah Nyambura	Data Collection, Analysis and Report writing
8.	Judith Obare	Data Collection, Analysis and Report writing
9.	Eunice Njoki	Data Collection, Analysis and Report writing
10.	Carol Wekesa	Team Leader, Data Collection, Analysis and Report writing
11.	Julius Nduu	DSO Makueni, Data Collection
12.	Mbwana Mwinyi	Enumerator, Kwale -Data Collection
13.	Peter Silas Mwathi	DDO, Matuga -Data Collection
14.	David Mathooko	DSO, Kajiado -Data Collection
15.	Mary Njeri	Enumerator, Nyeri -Data Collection
16.	Charles Mwakazi	DSO, Laikipia -Data Collection
17.	Charles Nderitu	DDO, Laikipia -Data Collection

REPUBLIC OF KENYA

MINISTRY OF STATE FOR PLANNING, NATIONAL DEVELOPMENT AND VISION 2030

INFRASTRUCTURE, SCIENCE, TECHNOLOGY AND INNOVATIONS DIRECTORATE

"A STUDY ON THE ROLE OF RURAL ROAD TRANSPORT INFRASTRUCTURE AND ACCESS TO HEALTH SERVICES"

"To Systematically Assemble Data, Information and Experience that can Provide Key Policy Options for Improved Delivery of Rural Road Transport Infrastructure that Improve Livelihood of Kenyans"

FGD SCHEDULE

TARGET PARTICIPANTS: *COMMUNITY*

KENYA VISION 2030
TOWARDS A GLOBALLY COMPETITIVE AND PROSPEROUS NATION

October, 2011

	THE ROLE OF RURAL ROAD TRANSPORT INFRASTRUCTURE AND ACCESS TO HEALTH SERVICES FGD: FOCUSED GROUP DISCUSSION SCHEDULE		
	QUESTIONS	RESPONSES	INSTRUCTIONS
1.0	INTRODUCTION		
1.1	DATE OF FGD	_____ /_____/ 2011	DD/MM/YY
1.2	STUDY SITE	COUNTY_____ DISTRICT_____ LOCATION_____ VENUE_____	
1.3	TIME	START_____:_____END_____:_____	
1.4	NO. OF PARTICIPANTS BY SEX (LIST OF ATTENDANTS)	Males Females Total	
1.5	LANGUAGE OF DISCUSSION	_____	
1.6	NAME OF FACILITATOR/NOTES TAKER	_____	
2.0	AWARENESS		

a) What are the common human diseases affecting the community/area?

_____

_____

_____

_____

_____

_____

_____

_____

_____

b) Do you or your relatives/friends seek medical/health services when sick?

_____

_____

_____

_____

_____

6			
7			
8			
9			
10			
11			
12			

d) Who are the key health service providers in the community/area? (Government, Private, NGOs, etc.)

s/no	Government	Private individuals	NGOs	Herbalists/traditional healers
1				

e) Are there health/medical facilities in the community/area? Yes or no

(1)What health services are offered? (Referrals, tests, medicinal etc.)

facility	Lab tests	referrals	x-rays/chemo/radio therapy/physio/orthopedic	maternity	General treatment/medicinal
GoK hospital					
Private clinics					
NGOs					

(2)How adequate are they? (in terms of tests, queues, courtesy)

(3)How much do you pay for consultation fees in these facilities? (In Kshs.)

f) How far are you (Kms) from the nearest clinic/Dispensary/health centre/hospital etc.?

(1)How long does it take you to get there? (In hrs/minutes)

s/no	dispensary	Health centre	NGO/Private clinic	Hospital
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

In case referred

(2)How long does it take you to get to the referral hospi tal? (In minutes or Hours)

_____

_____

_____

g) (1) What means of transport do you use to get to the health facility? (Cars, bicycles, motor cycles, hand carts, donkeys, walking, bus, matatu etc.)

s/no	Vehicle (public and private)	bicycle	motorbike	Hand carts(animal or human driven)	walking
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

(2)How much do you pay for the above means? (In Kshs.)

_____

s/no	Vehicle (public and private)	bicycle	motorbike	Hand carts(animal or human driven)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

h) What transport modes are available in the community/area? (Roads, Rails, Water, Air etc)

_____

_____

_____

_____

_____

i) If Roads, what type of roads? (Tarmac, murram, footpaths, earth roads etc.)

_____

_____

_____

_____

(3)How do you access the main road from your home? (By footpaths, community road etc.)

j) Have you ever been involved/consulted in road transport infrastructure development planning? (Including maintenance, etc.)

(1)When? (Which road)

(2)How?

k) Who are the developers of road transport infrastructure facilities (including bridges, culverts, bus parks etc.) in the community/area? (Factories, GOK, CDF, Roads 2000 programme, community roads etc.)

	Road/paths	bridges	culverts	busparks
factories				
GoK				
CDF				
Community effort				

(1)How often are they maintained? (Yearly, monthly, quarterly etc.)

(l) Do you have health facilities constructed using CD F funds (or other devolved funds)? Yes or No

(1) Are the facilities so constructed centrally located in the community? (yes or No) Please explain.

(2)Were you consulted/involved during their construction?

(3)Are there roads constructed leading to these facilities? (Yes or No)

(4)Do you have roads constructed using CDF funds (or other devolved funds)? Yes or No

(5) Do these roads serve the road transport majority of this community?

m) What problems/constraints related to rural transport infrastructure are experienced in the community/area while accessing health care services? (Safety, security, distance, road design, bus stops, markings etc.)

(1)How can they be overcome?

n) Any other comments?

THANK YOU

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"To Systematically Assemble Data, Information and Experience that can Provide Key Policy Options for Improved Delivery of Rural Road Transport Infrastructure that Improve Livelihood of Kenyans"

KEY INFORMANTS

TARGET PARTICIPANTS: ADMINSTRATORS-chief/sub-chief

KENYA VISION 2030
TOWARDS A GLOBALLY COMPETITIVE AND PROSPEROUS NATION

October, 2011

INTRODUCTION

The Kenya Vision 2030 recognizes the importance of development infrastructure as critical for socio-economic transformation. The need to travel, transport goods, access services from different destinations is an essential task associated with rural households. The role of the transport network in rural areas reflects the strength of the household's links with the wider economy. Health systems are dependent on the quality of transport access for the delivery of services in the local area. More specifically, the study will seek to systematically assemble data, information and experience that can provide key policy options for improved delivery of rural transport services in order to improve the livelihood of Kenyans at the national and local levels.

To make this possible, please answer the questions as honestly as you can. Kindly note that the information you are about to give will be used by the researcher solely for the baseline survey and not for any other purpose. Also note that, the data/information contained herein will be handled with utmost confidentiality.

1. How long have you served as an administrator in this community? (Months/yrs)----------

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---

2. Tell us about the means of transport in this community (List)----------

---

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3. What types of roads are found in this place? (With regard to surface quality)?----------

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4. How would you describe the condition of each type of road under all weather conditions?----------

---

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5. How well do these roads serve the community transport needs? (Good, fair, bad). Explain----------

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---

6. What are the health services needs in this community? (List) ----------

7. Where does the community seek these health services needs? (List)----------

8. In your own opinion, are these health services accessible by the community? Please explain your answer?----

9. How well do the roads in their current condition assist the community in accessing health services? Explain.-

10. How best can access to these health services by the community be improved?----------

11. Have you witnessed the construction or maintenance of any road in this place during your tenure of office? Yes or No. Which year was it? ----------

12. Have you ever been consulted on road construction/maintenance as a community leader? Yes or No. What exactly were you consulted about?----------

13. If Yes in (12) above, what effect(s) do you think the construction/maintenance has had on the community here? Explain.----------

14. Does the community participate in construction/maintenance of road transport infrastructure here? Yes or No

15. If yes above, how does the community participate?----------

16. Any other comments?

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KEY INFORMANTS

TARGET PARTICIPANTS: ROAD OFFICERS

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1. How long have you worked with this community? (mths/yrs)----------

2. Briefly describe your duties and nature of your service to this community?----------

---

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3. Who is involved in road construction or maintenance decision-making in this community?----------

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4. How are they involved?----------

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5. What are the typical difficulties with road transport infrastructure in this area?----------

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6. Do you think road transport infrastructure affects health services access in this community? Yes or No.

   Please explain your answer.----------

   ----

7. Apart from roads, what else affects access to health services by the community in this area?----------

   ----

   ----

8. What recommendations would you make on improving accessibility by road transport infrastructure?-----

   ----

   ----

9. Any other comments?----------

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KEY INFORMANTS

TARGET PARTICIPANTS: HEALTH SERVICES PROVIDERS

October, 2011

KENYA VISION 2030
TOWARDS A GLOBALLY COMPETITIVE AND PROSPEROUS NATION

INTRODUCTION

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1. How long have you served this community in this health facility? (Months/yrs))----------

2. Briefly describe the nature of your services to this community----------
   ----

   ----

3. What types of health services do you offer in this health facility? (List)----------

   ----

   ----

4. What are the common health services needs by this community?(tick)

CATEGORIES	MEN	WOMEN	CHILDREN	

Are there any that are life threatening? Explain.----------

---

1. Please describe the composition of the health services seekers in this facility

MEN %	WOMEN%	CHILDREN%

1. Do you take your services to the community or you only give health services from this facility?----------
---

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2. If you take your services to the community, how easy is the physical access to the community?----------
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---

3. How does the condition of the road transport infrastructure affect health services provision in this area during dry and wet season? ----------
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4. How would you rate accessibility of this health facility by most people in this area? Good or poor? Please explain.----------
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5. What are the challenges with accessibility of health services in this community?----------
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6. How do you think these challenges can be overcome ?----------
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7. Any other comments/recommendation?----------

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KEY INFORMANTS

TARGET PARTICIPANTS: Women Representative

KENYA VISION2030
TOWARDS A GLOBALLY COMPETITIVE AND PROSPEROUS NATION

OCTOBER, 2011

INTRODUCTION

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To make this possible, please answer the questions as honestly as you can. Kindly note that the information you are about to give will be used by the researcher solely for the baseline survey and not for any other purpose. Also note that, the

1. How long have you been representing women in this community? (months/years)----------
2. Briefly tell us about your responsibilities as a women's leader in this community----------
3. What are the health services needs in this community?(List)----------
4. In your own opinion, do women, children and men seek these health services at the same rates? (yes/no) please explain
5. What do you think are the special health needs for women and children (List)----------
6. What are the modes of transport in this area? (roads, air, rail, foot paths) List----------
7. How well do the condition rural roads in this area facilitate access to health facilities?----------

8. Do you think that women and children are affected in the same manner by the condition of rural roads while seeking heath services? Yes or No. please explain your answer above.----------

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9. Have you witnessed the construction of any rural road during your time in office? yes or no.
10. If yes above, what exactly were you consulted about?----------

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---

11. Do you think health services are accessible by this community? Yes or no.

    If No, how do you think this can be improved?----------

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12. Any other comments?----------

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