AN ASSESSMENT OF RURAL TRANSPORT SYSTEMS AND THEIR IMPLICATION ON THE GROWTH OF A MARKET CENTRE: A CASE STUDY OF ADUNGOSI MARKET CENTRE, CHAKOL DIVISION.

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

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Signed .....

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Supervisor

DEDICATION

THIS WORK IS DEDICATED TO

MY HUSBAND DAN, MY SON TUKMEN AND MY FATHER OSILLI.

MAY GOD BLESS YOU

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I would like to thank the Ministry of Lands and Settlement for granting me a scholarship, without which I would not have pursued this course.

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ABSTRACT

Transport plays a major role in development and for any rural area, the transport network must be developed and improved. However this development does not take off evenly in all parts of the rural areas, since there are nodal points for rural development. Therefore market centres can be points of development, especially when provided with good transport network.

The main purpose of this study was to assess the relationship between rural transport systems and the development of market centres. It was a case study and was more specifically concerned with five objectives; to assess the various types of socio-economic activities carried out in the study area, to identify the transport modes used, to assess the role of Malaba-Busia road in the economic development of the immediate region, examine the nature and magnitude of transport problems faced and finally make recommendations towards the improvement of rural transport systems in the study area.

The study area chosen was Adung'osi market centre in Chakol Division of Teso District. The area was chosen as a representative of the four market centres in the four divisions found in Teso District, mainly because it is situated along the Busia-Malaba

road corridor, and this location would enable to answer the question of how the transport network would affect development of a rural area, with specific reference to a market centre.

Two types of data were collected which were primary data and secondary data. Descriptive methods of data analysis such as mode, mean, percentages and frequency were used. The population of traders was sampled through simple stratified random sampling and the matatu manambas through simple random sampling. Interview schedules and discussions were held for boda-boda operators and key government officials.

The findings of the study revealed that, there are mainly small-scale businesses (retail) and not large scale business operations,in the study area which is partly attributed to transport problems faced by the traders such as poor road conditions, skewed public transport, inadequate terminal facilities, lack of public transport modal choice, and unregulated and unreliable transport services. This has led to the increase in the operation of informal paratransit mode of transport popularly known as `boda-boda'.

The study recommends that there is need for the institutional framework put in place to deal with transport issues to improve rural transport by maintaining the Rural Access Roads, to regulate the boda-boda, and have proper co-ordination between the government and NGOs by providing credit to the traders and boda-boda operators in the study area.

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NMT: Non Motorised Transport

NGOs: Non Governmental Organisations

RAR: Rural Access Roads

RTPCs: Rural Trade Production Centres

SRDPs: Special Rural Development Programmes

CHAPTER ONE: THE INTRODUCTION

1.1.1 Background to the study area

Since 1963, after independence the rapid rate of rural urban migration has resulted into high rates of urban population growth, with this phenomenon contributing well over 60% of the urban population increase. The proportion of the urban population was 6.5% of the total population in 1948, rising to 7.9%,9.9% and 15.2% in 1962, 1969 and 1979 respectively. At the current rate urban population growth of slightly over 7%. The proportion of the urban population in anticipated to reach 26% of the total population by the year 2000 (Maleche,1978).

However, with a high rate of population growth generally above the national average of 4% p.a coupled with limited high potential land resources for agriculture, the rural subsystem exhibits a situation whereby the `push' factors of migration have maximum influence on innovative and productive labour force. Thus the rural areas experience an ever increasing potential of migratory population, ready to move to an urban subsystem almost spontaneously. In order to stem this potential rural-urban flow to major urban settlements a two prolonged policy was adopted by the government of Kenya, namely to improve the performance of the rural agricultural sector and diversify it with a dispersed system of small and intermediate urban settlements and growth centres.

This policy implied the implementation of the following strategies: development of a viable agricultural and agro-based industrial sector, provision of adequate socio-economic infrastructure, development of adequate physical infrastructure, alleviation of rural population concentrations and land pressure through rural and urban resettlement programmes. These programmes have been and continue to be promulgations of the policy of controlled decentralisation of the primary, secondary and tertiary production systems of the economy to meet the needs of the majority.

This policy was formulated on realisation that concentrating infrastructural development in selected centres would to promote formation of small towns as service centres in the rural areas. As these towns grow, they would form a level of communities large enough to be economically served with public supply, sewage disposal, grid electricity, improved access roads, postal and telephone services and banking facilities. Once a centre has these basic infrastructural facilities, it would be in a position to attract commercial and industrial development which would enrich the lives of the people of the rural areas and provide improved marketing opportunities.

This being the situation, then the reverse is true. An economy which is in the low state of evolution, does not provide sufficient employment opportunities to absorb the extra ordinary large population increase. The basic causative factor is a low standard of urban infrastructural development-besides the other infrastructural facilities,are lack of

organised markets and lack of transportation facilities- which discourages the development of commercial and industrial enterprise.

Therefore the market centres, as being service centres to facilitate development of the rural areas, would help meet the objective, if the infrastructure facilities be in place such as transport.

1.1.2 Statement of the problem

Production possibilities, diversification of economic activities and division of labour are more in the urban areas than in the rural areas. This bias towards the urban areas has a magnetic effect on rural population to the extent that there is high migration rates from the rural areas to the urban areas. However despite the high urbanisation rate, the majority of the population in Kenya still live in the rural areas. There is an interdependence between urban and rural development in terms of service provision and resource utilisation, employment and income generation within the rural and the urban continues. In this regard consideration should be given to rural service centres as these are the intersection between the rural and the urban centres. Market centres are therefore important as they perform certain functions in rural development.

Service centres, in this regard of the study, market centres, are considered to be important instruments of bringing about regional development and as focal points for

decentralising large scale industries from the larger and often older cities and towns as well as providing specialised services and benefits to populations in the surrounding regions. According to S.M.Kimani and D.R.F Taylor (1973), rural market centres are growth centres which would be used as a spring board for the following development functions:

a) Provision of adequate services for the rural area around them.

b) Stimulation of economic and commercial growth especially small scale enterprise in the informal sector.

c) Coordination of development planning- particularly the present District Development plans for the rural transformation.

However the paradox is while the Government Growth Centre Policy on one hand advocates industrialisation with a hope that the entrepreneurs will have the capital and move to the market centres while on the other hand, no focus is made on the economic provision of infrastructure that supports the growth of the centre's economy. The provision of economic infrastructure is an eminent aspect in rural development as it is expected to trigger off economic growth in the rural areas. But there are several conditions which need to be fulfilled before development is attained. Therefore market centres can be points of development especially if provided with good transport network.

Rural transport is one of the most significant means of ensuring that those who live in the rural areas have access to markets for their products and social services (Barwell.J). Studies in the developed economies suggest that transportation costs are not a significant proportion of the final price of most of the final price of most manufactured goods on average, transport accounts for less than ten percent of the value of the delivered products. This low cost is due to the more efficient transport systems and set production patterns. Consequently, transport demand tends to be price inelastic in developed economies.

In less developed economies however, the situation is somehow different. Here a large proportion of the economically important movements are bulky, low-value agricultural products. Transport costs on the feeder roads to the trunk roads or the railway to the coast, through the port and the onto the ship, often account for as much as fifty percent of the receipts from these commodities. Transport also is particularly costly because of inadequate and inefficient transport facilities. Given these conditions, price elasticity of demand for transport tends to be higher in the less developed countries and so reductions in transport costs are likely to have significant impact on output, in terms of bringing into production magnificent impact marginal resources.

Alongside it's role production, transport improvements absorb a significant part of the total investment, though there are variations among countries. The major objective of

investments in the transport sector is to reduce the costs of production by lowering the distribution costs, thus higher levels of production and consumption. The organisation of human communities reflects attempts by households and business firms to overcome the friction of space. Transportation is the means by which this can be done, the more efficient the transportation network, the lower the transport costs.

However investment in transport is a costly business, especially for the poor countries because the means of transport cannot be acquired in small amounts, roads and railways are indivisible units that cannot be built unless there is a certain minimum size of investment . The state has to decide whether the national `market' for transport is large enough to justify certain facilities in the same way that the private entrepreneurs have to decide whether the market for their products is large enough to justify investment in a particular piece of capital equipment.

Since transport facilities can only be acquired at heavy cost, it is necessary to relate this cost to the benefits expected from them. In the case of roads which are provided by the government but used by all members of the society, there is no straight forward way of comparing costs and benefits. The main issue of transport policy turn on this kind of assessment , however and the art of road development planning lies in avoiding the grandiose investments that the economy cannot afford, whilst not inhibiting economic

growth through failing to provide facilities for the growing sectors of the economy.

Basically the role of transportation in economic development should not be overlooked, and the fact that the transport sector is only one of the instruments for the initiation of economic development and that the it has to be optimally linked and coordinated with other sectors within the framework of overall integrated planning.

Akungo (1980:14) gives the primary and the secondary objectives of a rural or regional transport system .

The primary objectives are:

a) To link various places and parts of a region and

b) To facilitate movement of goods, services and persons within the region.

Any transportation system which does not serve the above objectives is considered inadequate. This study will therefore depict whether the transport system in Adung'osi is adequate or inadequate.

The other objectives of a transportation system, considered secondary though, are:

c) To promote the development, growth and distribution of economic activities within various areas of the region.

d) To provide the cheapest , efficient and safe means of movement for the community.

e) To provide in a coordinated way special services and accessibility to strategic areas and points of activities.

f) To enhance mobility and contact by the community for the purposes of economic interest, avoiding cultural and community isolation and facilitating governmental activities.

In a nutshell, transport plays a major role in development, and for any rural area or region's development to be enhanced, the transport network must be improved and developed.

With the above assumption that transportation system in place will trigger economic development, as an economic centre, Adung'osi market as a confluence point of the rural population for the exchange of their produce in trade and commerce, employment and transport is expected to be growing significantly. It is also a communication hub and is one of the major market centres in the region, linking Malaba town to Busia town. The Busia-Malaba road corridor is therefore an important transport channel for vehicular movement to and from the two urban centres.

Apart from the motorised form of transport and the centre being in a strategic location there is an increase in association of transport operators and the provision of an

informal basis of paratransit commonly known as "boda-boda". Yet still all these in place, the centre has an apparent stagnated growth.

Against this background, the study sets to find out whether and how these advantages have improved the accessibility and mobility within the centre and it's hinterland that should be a resultant factor to the centre's to growth.

1.2.1 Study objectives.

The main objective in this study is to find out the relationship between Adungo'si market centre and it's rural transportation systems. The specific objectives in the study are:

a) To identify the transport modes use in Adung'osi market centre to and from it's hinterland and the other urban centres.

b) To assess the role of Malaba-Busia road corridor in the economic development of Adung'osi market centre.

c) To assess the various types of socio - economic activities carried out in Adung'osi market centre.

d) To examine the nature and magnitude of transport problems faced in Adung'osi market centre and it's implications on the growth of the centre.

e) To make recommendations on strategies for policies aimed at improving the rural transport systems in support of rural development.

1.3.1 Assumptions.

The essential assumptions on which this study is based on the following:

a) A focus on improving the transportation system of Adung'osi as a catalyst in the development process would promote high standards of living among the rural people in Adung'osi market centre.

b) Adung'osi market centre is a nuclei for rural development as it gives services to it's hinterland which cannot be found elsewhere in the hinterland.

1.4.1 Scope of study and limitations.

There are many aspects that could be studied as far as transport and rural development is concerned. For the study to be feasible, there were certain aspects that were to be picked. The study narrows down to looking at rural transport systems and the modes used in Adung'osi market centre. Besides these, the problems encountered in rural transportation are examined. Also the aspects of rural development that are taken into consideration is the market centre as the nucleus of development for it's hinterland opening opportunities for trade and employment. The study takes into account

economic considerations focusing on the interrelationship between trade, industry, employment, service provision and transport provision. None of these factors is treated autonomously. Also of importance is the local community identification with the centre as a service centre.

The geographical area of the service centre is treated as the unit of focus within which the interacting economic activities agglomerate to facilitate the growth of the market centre which is directly linked to transport. Different types of transport modes among other factors,is taken as an important aspect that influences in the growth of the centre.

The study was carried out with a number of obstacles that hampered the smooth carrying out of the study research while in the field. In collecting correct information a number of respondents were reluctant in giving information and some gave partially true or distorted information because of suspicion that the research was a government officer who had sinister motives; of ruining their businesses. Some of the respondents demanded that they be paid some money prior to them giving out any kind of information. However the two difficulties were overcome when the researcher had to disclose her identity to the respondents, as a student and that the exercise was purely an academic exercise and would be treated with confidentiality.

Taking of photographs was quite a difficult task to accomplish as the research was met with hostility. The researcher overcame this by hiring a local photographer that is well known in the locality.

The study area being located in a newly created district, documents and data relevant to the study such as maps for the new administrative units and specific statistics for the study area, were unavailable from the relevant government offices and the county council. Even where the needed information was available,it was still treated `confidential' and not accessible to the public. Data from the old Busia district was used.

The other limitations were finance and time, which resulted into the selection of smaller samples of twenty commuters and sixty traders being sampled.

1.5.1 Justification

The aspect chosen to be studied in rural development is significant since the market centres in Teso District have been the object of very little research. Therefore the gap of information is very wide. This is particularly so concerning the nature of linkages between small towns and their hinterland and how they affect one another. Moreover the already available information is too general and not up to date for the new district's regional planning. Also since the government policy of rural development from the

grassroots is an emphasis for achieving national and economic development, this study will contribute to the achievement of this goal.

Adung'osi market centre is located in a new district which is a phenomena currently new in Kenya therefore this calls for more focal planning to achieve equitable planning for regional planning in the district. The regional boundaries have therefore been re-defined to bring about greater equity amongst the previous internal boundaries of the district. The new region has a potential to become an important growth area and contribute to national development.

In the same regard for the developing world, rural transport studies are relatively insignificant compared to research into urban transport. This neglect is unwarranted when one considers that more than 70 percent of the population of most developing countries is rural (Oloba 1986). Given their spatial implications, rural transport studies are very important in such economies, but inadequacy of necessary data presents a problem to such studies in third world countries. This study will therefore contribute to the so much needed data on rural transportation systems.

The bulk of the people in Kenya being residence in the rural areas have an average income much lower in the rural areas than the urban areas. It is therefore a fundamental objective of this study to point on the improvement of the overall standard

of rural life at least as fast as the rise of in the average income in the country as a whole and this will particularly involve the raising of services such as transport, towards those levels which now exist in the urban areas, which is an objective of this study.

1.6.1 Research methodology.

In carrying out the study, the used approach involved four stages. First, a reconnaissance visit was made to the area to familiarise with the region.The second stage involved data collection, the third being data analysis and finally the interpretation of the findings.

1.6.2 Data collection methods and analysis

In collecting data, the study consisted of two types of data, primary and secondary data.

1.6.3 Primary data

The primary data was collected through formal interviews by use of questionnaires. Two sets of questionnaires were administered, traders and travellers. Interviews and discussions were also conducted, group interviews were conducted with the matatu and boda-boda operators and personal interviews with the relevant persons and the authorities such as the administrative officers, the trade officer, the local authority and

the Ministry of Transport. Personal observations of the existing situation were also made. Photography was used.

1.6.4 Secondary data

Secondary data was obtained from publications in libraries on past research work, official documents especially from the Divisional and District government offices and County Council. The data collected was useful in determining the place of rural transport systems in the government in planning policies.

Descriptive methods of data analysis such as mean, mode and frequency were used.

1.6.5 Sampling procedure

The district was considered as planning region with four administrative divisions which are Amagoro, Amukura, Ang'urai and Chakol. Of the four, Chakol Division was taken as the area of study because the busiest road that transverses through Chakol division, linking Busia and Malaba which are border towns. In Chakol Division, the largest market centre is Adung'osi and on this basis the centre was taken as the sampled area of study.

Two sampling techniques were used to get the sampled population, namely stratified and simple random sampling. Simple random sampling is one in which everyone has

an equal chance of being sampled. In the case of a stratified sample, the population is classified into categories depending on the phenomena the researcher chooses. Samples are taken from each of these categories. In this case, same objects will have a greater chance of being chosen than others.

1.6.6 Sample size

To get a representative population size, a list of all registered businesses from Adung'osi market in Chakol Division was prepared from the Busia trade officer. The total number of the registered traders was 75. From this list of 75, 80% of the total number (60) were sampled through simple stratified sampling. The trader were divided into two groups, those operating in built premises and the market sellers in the open.

The sample size is justified on the grounds that the traders have similar characteristics. Even if a smaller size was chosen it would have revealed the common characteristics of the total population.

The matatu manambas were interviewed using simple random whereby a manamba was interviewed on arrival of a matatu. This gave the manambas an equal chance of being interviewed.

For travellers, the market day being the peak for commuter mobility, the travellers on either vehicles and NMT, were interviewed . There was no official document to indicate the volume of mobility of commuters, therefore the population size of twenty travellers was chosen to be representative of the travellers personal opinion on transport and it's effect on growth in the centre.

1.7.1 Operational definitions

Boda-boda: Public transport taxi bicycles for hire.

Market centre: This is an area that serves 60 to 100 square metres in a well populated area with a minimum population in it's service area of 15,00 inhabitants.

Transport: Is that part of economic activity which is concerned with increasing human satisfaction by changing the geographical position of goods or people.

Rural: This is a difficult concept to define, but for the purposes of this study the adopted definition may be taken as a settlement with inhabitants less than 20,000, whose occupation is primarily agrarian. These settlements often lack basic infrastructure such as electricity, pipe-borne water and good roads.

Rural development: This is a strategy designed to improve the economic and the social life of the people who live in the rural area.

Rural transport: May thus be defined as short-distance movements between an urban centre and the surrounding rural areas, between two rural settlements or between a rural settlement and the hinterland that belongs to it.

1.8.1 Structure of the thesis

The first chapter present an introduction of transport in general and more specifically in the rural areas, with an objective of situating the role of transport in economic development and thus putting the subsequent chapters in proper perspective. The problem statement, objectives, hypothesis and assumptions of the study are all spelt out. Since transport is wide, the scope of the study is defined and the limitations met in carrying out the study explained.

Chapter two presents an overview of transport systems especially in the rural areas. This chapter also examine the central place theory. It also contains the government policy towards planning and investment in rural transport and proceeds to give a description of the extent of the government role in rural development which later brings out the place of transport in economic development of market centres. The conceptual framework is also given.

The background information of the study area is the third chapter. The emphasis is on the physical and the economic characteristics of the study area. Aspects such as geographical location, climate, topography and population characteristics are discussed.

Data analysis is the focus of chapter four and five. Among the issues that emerge from the chapters are the trend of growth of business, various socio-economic activities, transport modes and transport linkages, transport problems and other factors affecting the socio-economic activities, in the study area.

The final chapter, is a conclusion of the study. It contains the synthesis, summary of findings in the field and their recommendations. Finally it points out the areas that call for further research.

CHAPTER TWO: THEORETICAL FRAMEWORK AND REVIEW OF GOVERNMENT POLICY

2.1.1 Introduction.

This chapter seeks to examine the central place theory it's application in explaining the growth of market centres with emphasis to it's relevance in the growth of Adung'osi market centre. In this context, the role of transport in development, the government policy on rural development and transport are also examined.

2.1.2 Definition of central place theory.

In the Central place theory, the term central place, has meant an urban centre, therefore the term seeks to account for these urban centres. Central place is a crystallization of a mass of population about a nucleus for various functions such as a town centre or a market area, while a complementary region is a region that serves the central place, and includes relationships in both directions, (Brian B.L., 1970: 171-172).

Distance plays a vital role in any determination of complementary regions measured in time and costs. The threshold is defined in terms of the minimum level required to support a service and can be expressed in terms of population and income. It reflects the economies of scale in the provision of certain services and agglomeration

advantages accruing from locating centralized service establishments near to each other (Richardson W.H.1969:371-386). Range is a place or region over which a service is supplied, affected by many factors such as economic distance (freight costs and monetary costs involved in the transportation). Christaller defined the range of a good as the circular area beyond which buyers would not be willing to travel for the good given or needed (elasticity of demand), price, transport cost and frequency of use, while the threshold was defined as the circular area containing sufficient consumer demand of a good to meet the supplier's requirements for survival in business.

This theory was postulated by Walter Christaller. The concern was with the array of urban centres and associated market areas with transportation routes remaining basic to central place theory. The theory mainly explains the spatial structure of retail and service business, therefore increasing the content of the theory. According to the theory, the growth of the city depends upon its specialization in urban service functions, while the level of demand for urban services over the service area determines how fast central places grow. The problem to which it sought a solution was the optimal location of business functions and services which were independent of particular sources of supply. (Smith Carol, Regional Analysis, 1976:12).

2.1.3 Content of the Theory

Basing on the ideas on the assumption that man tries to organise his activities over geographical space in an efficient manner, Christaller (1933) and Losch (1940) were able to derive a structure of spatial organisation that purports to explain the pattern of clusters of human activities as characterised by relative locational positions, sizes, functions and spatial distribution of urban places.

From these assumptions settlements would spring up at evenly spaced points to serve tributary market areas with goods and services. The size or growth of the consumption of central services and development of central places would therefore depend on, the suppliers prices, population density, rising incomes and total demand for the services and goods.

For any viable retail firm, the distance that defines the firm's threshold must be equal or less than the distance that defines the range of the firm's goods. From these two principles, one can model consumer and supplier behaviour in interaction with each other. That is, given consumer density, needs, and incomes (which add up to demand), and given supplier price and income requirements (which add up to his ability to supply), plus knowledge of transport costs, one should be able to predict how many facilities of a kind a given area can support.

The actual physical distance from which consumers will come to utilize a facility and the actual physical area that would meet the facility's threshold. From this one could locate the most economic space of business on the landscape.

The model, therefore, basically attends to various levels of centres and their distributions to the spatial patterns of central place systems. Central place systems can be built from the top down or from bottom up; Christaller worked from the top down. He begun with the suppliers of a high order good or service (demand is low many consumers required), assumes that as many suppliers as possible attempt to locate in a region to saturate all demand. Each supplier would attempt to locate as far as possible from the other. Suppliers in order to dominate as many as possible minimum thresholds, the circles would overlap. Packing of circles (from competition), and consumer choice of the closest supplier with the lowest price (consumer rationality), will bisect the areas of overlap, ultimately leading to hexagonal market areas for each supplier, as well as to minimum supplier price.

Then Christaller took suppliers of a low-order good and attempted to place them on the same landscape. He assumed that these suppliers would also be in competition and would choose locations in terms of the greatest advantage as follows. They would first

locate in the centres that provided higher-order goods, (first level centres), thus inveigling business that was attracted to the higher-order, goods and services. But since demand for the goods of this second group was sufficient to give them a lower threshold than the first suppliers, thereby meeting the greatest possible demand and the least possible competition. This would provide second level centres between first-level centres.

This process would be the same for suppliers of a third-order and lower orders of goods that would produce even lower level centres between first and second level centres, and between second and third level centres, and so on. The high-level centres would become larger and more widely spaced than lower level centres. This represents a hierarchical theory where in each central place is a member of functional order of centres, with each order performing a specific group of central functions and the centres in that order have populations which fall within a certain size range.

The system of central places developed by Christaller on the basis of range and central goods used the assumptions that all areas were able to be served from a minimum of central places, therefore the principle on which the system was developed can be called

the supply principle or the marketing principle. Other principles that he recognized are transport and administrative. The principle of traffic says that the distribution of central places is at an optimum where as many important places as possible lie on one traffic route between larger towns. Complementary regions then nest according to the rule of fours as opposed to the supply principle of three.

Principles of traffic are fundamentally linear, those of marketing spatial. Political-social (administrative) principles are based upon ideas of separation of complementary regions for purposes of protection, or distinction which implies clear cut administrative controls. In this case nesting follows a rule of sevens. These three principles determine each according to its own laws the system of central places.

This theory attempts to explain the size, number and distribution of towns. The theory also could be designated as the theory of location of urban centres.

2.1.4 Application

The theory is criticised because it does not explain growth phenomena, it is a static theory that aims at explaining the existence of patterns of centres and tells nothing about how the patterns come into being or how the pattern may undergo further changes. However the theory can be applied in the development of urban centres.

The market principle or pattern is most efficient for rural consumers and for the distribution of rurally produced goods. This applies to Adung'osi market centre which serve as markets for these goods. This includes the marketing of farm produce in the rural periodic markets days that are normally there on Wednesdays and Saturdays.

The transport pattern is most efficient for urban distributions and for the distribution of urban goods especially those of high weight and value. This applies to the distribution of processed and manufactured goods to various urban centres or places within the same town. Adung'osi market centre being the higher-order centre, has some second level centres (local centres) such as Asing'e, Machakus, and Ang'orom where goods are distributed.

Small market centres are oriented toward urban centres, by the marketing principle, urban centres oriented to each other by the traffic principle, this is appropriate because urban centres have large populations and exchange goods between themselves on major routes, and the biggest urban centres are organized by administrative principle, each being the political capital of the areas that encompass the region. The central place theory is therefore most applicable to planning because it seeks to explain the location of various commercial activities and services on land where people are already settled, the distribution of these goods and movement of people as well as the efficient administration to help realize surplus, hence economic development.

2.1.5 Advantages of the theory

Its value is multiplied in a regional economic context because no other theory stresses as much the interdependence between a centre and the hinterland within which it is situated. The various linkages between hierarchies of central places explains the regional growth context, whereby the higher order centres are seen as growth roles whose wealth will trickle down via the lower order centres.

The central place theory also predicts urban location patterns that are optimal to allow efficient exploitation of the hinterlands. The theory is valued as a theory of optimal location of urban trades, institutions, and shopping centres. To mitigate the effects of transportation and administrative patterns on it's location patterns, the theory incorporated these aspects and spelt out the types of central places that would emerge due to the effect of transport and administrative patterns.

The theory underscores the importance of transport network in economic development to facilitate the movement of goods, services and people. This accounts for the emergence of ribbon development along the main transport systems. Its logical because land values automatically rise when a road passes in a potential area of growth. Decentralizing such pattern of growth is therefore a planning task.

Beside the opportunities of development being possible by the market and traffic principles, it was observed that these are necessary but not sufficient conditions for economic development. Theory therefore brought in the administration principle which points to the proper management of resources if development is to be realized as pointed out by Skinner. Therefore efficient administrative organization of regions and towns is incompatible with efficient economic organization of regions and towns, hence development.

The theory is modelled alongside the classical economic theory of Adam Smith, of the invisible hand. It champions free competition and explains that the suppliers of goods would only get normal profits to prevent the growth of monopolistic tendencies. This leads to efficient resource use or parieto efficient situations. (Hardwick P, et.al: An Introduction to Modern Economics; pg, 23-9). This conforms to the World Bank's language of private enterprise.

The theory has recognized society's functional organization is hierarchical and the central place system is the spatial manifestation of such social order.Provides centres that people can purchase goods and services depending on their income.

Although the theory has been heavily criticized, it provides an understanding of the criteria used in the selection of growth centres in Kenya.It provides a good framework

for understanding regional systems and the linkages between regions. This gives a basis of regional economic development. The theory also recognizes the role transport and more so good administration could play in accelerating development.

2.2.1 Review of the government policy on rural development

2.2.2 Growth centres in Kenya

In the Kenya context, growth centres are an integral part of the concept of Physical Development Planning as outlined in the 1970-1974 Development Plan. Others see it as a much broader concept and in Kenya in essence it entails `a synthesis of development'. There are four main types of designated growth centres: Urban Centre, Rural Centres, Market Centres and Local Centres in descending order of importance and size.

Urban centre are medium sized towns in the Kenya context which have been designed to serve as the main commercial centres for an entire district. Generally, they are meant to contain the District headquarters. The Development plan estimates that they are likely to have a population of in excess of 10,000 people by the year 2000. Then in 1973, there were 36 designated urban centres in Kenya. In Teso district the only designated urban centres are Amagoro/ Malaba towns.

Rural centres were designated for development to provide at least 40,000 people in rural areas with administrative, social and commercial services. It is expected that with the progressive economic development of the rural areas they will grow in to small towns of between 2000 and 5000 within twenty or thirty years. These Rural Centres are particularly important in that they are geared to improving both quality and quantity of services and amenities in the rural areas. It is planned to concentrate administration and other services in these centres and to service them with public water supply, electricity and all-weather roads. These Rural centres are felt to be the most suited for the development of rural cottage industries. There were 140 such designated centres in Kenya then.

Market centres have been designated for development of a lower level of services for a rural population of at least 15,000. The development plan suggested that the anticipated population of these centres would be less than 1000. It was intended over a period of time to concentrate health centres, chief's camps and secondary schools in these centres. They are meant to have plots designated or commercial uses as well as a traditional produce market and it was planned to supply them with a public water supply and both banking and postal services. There were 231 such centres planned in Kenya and in Teso district. Amukura then was a market centre.

Local centres were designed to serve a rural population of at least 5000. Their resident population was planned as not more than 200 and although they have no administrative function, it was planned that local centres would act as important trading and social centres especially in the sparsely populated areas of the country. There were such centres planned in Kenya. In Teso, then Adung'osi was local centres.

It is as a result of the increase in population in the major cities in Kenya, especially Nairobi, over the last decade has which has been drastic, that bore the concept of growth centres in the rural areas, in part represents an attempt to slow down the movement from countryside to town. The plan designated rural growth centres as foci of trade, social services and communication which serve surrounding farm areas and which can significantly alter the patterns of migration and provide more even development of the nation as whole. All new infrastructural investment were to be concentrated in these centres and `proposals involving development of services facilities within non-designated centres were therefore be discouraged. No specific definition of a growth centre is given in the Development Plan but the functional terms in Kenya, the growth centre appears to have two purposes: firstly, to provide adequate services for the rural areas and around them, and secondly, to stimulate economic and social development of these areas.

2.2.3 Rural Development in Kenya

Much of Kenya's current thinking on rural development came out of the Kericho Conference in 1976, whose overall recommendation for the Government of Kenya was that the government should develop a comprehensive approach to rural transformation which would include short term measure to promote agricultural productivity, a functional strengthening of rural education system and investments in the public sector and in private farming with long term effects on agricultural productivity.

The plan finally adopted by the Government took into consideration agricultural production, a special rural development programme, structures to allow more effective local inputs to planning and the establishment of rural growth centres.

Much attention was given to the major elements of the plan especially the Rural Development Programme which grew out suggestions made at the Kericho Conference that a series of small pilot projects in which the concept of intergraded rural development could be tested and be established. The concept of rural growth centres was neglected and the Special Rural Development Programme paid little attention to it.

An analysis of infrastrutural distribution and grouping described in the already mentioned development plan showed a low standard of physical development in Western Kenya. Although hierarchy of service centres thus already exist in Western Kenya to provide administrative, social and commercial services to the rural population

but many of these centres are deficient in the range of amenities available with the result that economic development of the rural areas is hampered and the welfare of the people is impaired. Furthermore, a large proportion of the facilities which do exist are inconveniently localised in relation to their potential market area and are randomly scattered so that they do not contribute to the development of viable rural communities.

In the government Development Plan 1970-1974, rural development is stated as `...to be a key element in the nation's basic development strategy. Rural development includes not only the stimulation and improvement of agriculture and social welfare of the rural population, but also includes the development of towns and villages in the rural areas,road improvements, water supplies, rural industrialisation, better housing, schools and health facilities and facilities for marketing opportunities.'

The schedule of selected centres of Western Province, in Busia District was as follows as showed in table 2.1, among which Adung'osi (Chakol) was designated as a Local centre.

Table 2.1 Designated service centres in 1970, Western Kenya

District	Urban Centres	Rural Centres	Market Centres	Local Centres
Busia	Busia	Kocholia	Malaba	Alupe
				Likolis
			Amukura	Kwangamor

	Chamasiri
	Jairos
	Kolait
	Machakus
	Chakol/Adung'osi

Source: Adapted from National Development Plan 1979-1983 part I (with modification).

The selected centres as already discussed were of four types or grades termed in descending order of importance, urban, rural, market and local centres. Each grade of the centre was planned to perform specific level of function and the higher level centres were to serve correspondingly large hinterlands. Adung'osi in this context is a local centre.

An analysis of the trend of growth of these designated service centre shows that the policy has not succeeded in catalysing development to their hinterlands because some lower centre have overtaken the higher level centres then, while others have stagnated. For instance table 2.2 shows the present trend.

Table 2.2 Shift of lower centres to higher level centres in Teso district

Urban centre	**Rural centre**	**Market centre**
Malaba	Amukura	Alupe
Amagoro	-------	Ang'urai
	-------	Likolis

Source: Field survey, 1997

Adung'osi local centre is now a market centre, while Chelelemuk has stagnated.

The fourth development plan, 1979-83 aimed at integrating rural development with urban development. Under this policy therefore, the designated service centre hierarchy was accepted as able to serve the rural areas both directly and indirectly. The centres were designated according to the services performed, the economic potential of the areas served, the population served, and the spatial distribution required to produce development throughout the nation.

The designated principal towns of Nairobi, Mombasa, Kisumu, Nakuru, Nyeri, Kakamega, Embu and Meru were to be strengthened to provide the necessary to accelerate development of the hinterland they serve. As that development took place it was expected in turn to stimulate further growth of the centres.

In applying the growth centre concept to rural development, the concept of scale is very important. Growth centres can be considered at various scales, there are national growth centres, e.g Nairobi, there are regional centres such as Kisumu and local centre such as Chamasari local centre.

In Kenya the small urban place is the interface between rural and urban sectors and could play a vital role in development. A small urban place here would mean one which performs administration and protection, social services, communications and

transportation, commerce and industry and power, and with populations of 800 and 5000 with a hinterland of 30,000 to 80,000.

The use of such places would provide an opportunity of linking the developing urban system with the developing rural system. These small places at the bottom end of urban hierarchy, at the same time they are actively involved with the rural system. Any strategy using such small places would therefore affect both systems to various degrees and is likely to add to the urban-rural gap than strategies dealing exclusively with their system (Kimani 1973:12).

To achieve the aim of improving the quality of the rural people, then people in the rural areas have to be provided with basic services such as health facilities, water, power, transportation e.t.c. Concentration of these facilities in selected centres ensures that input of capital resources into the rural areas is used with maximum possible benefit of the regional economy and convenience of the local people (Ominde et al;1973:2). Another advantage of concentrating services in one place is it facilitates interaction between the services, and people can use more than one service that exist in the centre.

The services that cater for the rural populations can only operate at their optimum when they provide for a certain minimum number of persons, this threshold increases

with time. Therefore the small urban centres which are the smallest units that can support an adequate package of basic services help in increasing the degrees of accessibility by ensuring that the effective distance most people have to travel to reach such a centre is less than if a larger centre were used. Also the provision of services in too large a place would lessen the chances of benefits reaching the maximum number of people, therefore small centres ensure that development is spread over.

In many of Kenya's rural areas population densities are already high and if the same population trend continues, the rural population will double in the next three decades. Even if the major towns continue to absorb a disproportionate percentage of this increase there will still be population pressure in the rural areas. The small urban places will have to provide residential accommodation for many of these people.

The role of the small centres in providing residential and service functions is evident in that such centres introduce and diffuse innovation and stimulate the socio-economic growth of a region.

Innovation is considered as a key factor in development because it causes a decline in functioning of time which is also subject to a threshold limitation. Consequently the lowest levels of welfare are in areas peripheral to small urban centres in the outlying hinterland regions (Berry B.J.L,1972). It is assumed that innovation and modernisation

move from the major urban centres along the transportation routes to smaller urban centres and lastly out into the rural areas and a pre-requisite to this process to take place is a well developed urban hierarchy. (Berry B.J.L loc cit).

In Kenya the major aim is the incorporation of rural inhabitants to the development process. If innovation filters down through a hierarchy with both time and distance decay effects, then it would seem logical to reduce these effects by introducing innovations at the lowest level of urban centres rather than allowing it to filter down. This of course applies to induced innovation especially in the field of rural development and would suggest that the use of the small urban place as an injection point for innovation is appropriate. The small place would be an injection point for whatever rural development strategy was considered appropriate. It is on this basis that the SRDP were started that this strategy was to be implemented through these centres.

2.2.4 Critique of the SRDP

According to Nellis (1972:168-182), the major problem to the success of SRDP was rural development in Kenya lacked effective coordination both at the centre and in the field at the local level. Sectoral planning led to a multiplicity of government agencies with fairly strongly developed vertical linkages but very poorly developed horizontal

linkages, which have weakened the effectiveness of transformation in the rural areas as efforts of various agencies have suffered lack of coordination.

The highly central planning system then inhibited local participation from the grassroots and there was an evident lack of institutions to encourage local participation. The lowest level of planning bodies then was the District Development Committees and the District which were fairly large planning units.

The structural relationship between the urban systems and the rural sector in Kenya are very weakly developed. This is due to the fact that the spatial systems were those built by the colonial governments which were not always conducive to the development of the country. Most of the towns in Kenya are `insular' towns - towns that have scarcely any beneficial effect on the countryside around them.

As a result of the failure of SRDPs, the government in the Sessional Paper No.1 of 1986 introduced RTPC'S so as to concentrate scarce resources for urban infrastructure in a limited but growing way, of selected rural centre which have the best potential for supporting agriculture and it's linked productive activities, including processing, manufacturing and services. The concentration of resources in a rural centre over a limited period is designed to remove obvious bottlenecks in physical infrastructure, to

maximise the aggregate impact of individual projects and to yield great financial returns.

The introduction of RTPCs in 1987 with an aim of creating an urban nuclei equipped with the basic infrastructure necessary for efficient operation of business and industry to stimulate employment outside primary towns, were to be important nuclei for economic activity. The development of the centres is predicted on the development of major infrastructure such as transport. However in Teso district there is no centre that was designated as a Rural Trade and Production Centre.

2.3.1 Government policies on transport in the development plans

2.3.2 1964-1970 Development plan

It was government priority to develop all types of roads to enable communications to keep pace with the general development in the country. During the next six years within the plan, the emphasis was to be placed on the continuing development of the trunk roads in Kenya. In giving priority to both trunk roads and secondary roads, agricultural potential of areas being served were to be a major consideration.

Therefore the first priority for the plan period was to improve the heavily travelled roads which connected the principal towns in Kenya. The government policy in this develop plan period is silent about the rural roads that play a role in rural development.

2.3.3 1970-1974

The major emphasis was being directed towards feeder and minor roads in the rural areas. New roads were to be built to open up new ones where no road communications existed. Secondary and minor road networks were to be reassessed in order to predict the types of construction that would ultimately be needed for the different routes. This was supposed to involve the reclassification of virtually the whole road network. The emphasis on developing secondary and minor roads was to be directed towards minor roads and economic development projects, which were ultimately to be improved to bitumen roads of high standard. The plan acknowledged the urgent need for road maintenance which insufficiently done.

2.3.4 1974-1978 Part II Development plan

In this plan period, the focus was in the construction and maintenance of all classified roads by the Ministry of Works. The road categories were:

International trunk roads - roads linking centres of international importance and crossing international boundaries or terminating at international ports.

National trunk roads - Roads linking provincially important centres to each other or to higher class roads.

Secondary roads - Roads linking locally important centres to each other, to a more important centre or to higher class road.

Minor roads - Any road linking to a minor centre

Special purpose road- Roads that serve particular schemes.e.g a sugar-cane scheme.

Thirty projects of trunk roads in Western province were planned for, for minor road projects, there were none except for Bungoma township and Vihiga which were Special Rural Development Programme areas. The secondary roads were not to be implemented in Western. Conclusively, Busia district then was not a focus for road network development in this plan period.

2.3.5 1979-1983 Part I Development plan

In this development plan, the government recognised that fact that adequate transport facilities played an important role in the development of the country, more particularly, the road transport sector, because the roads can reach the remote parts of the country and a wide variety of people engaged in diverse activities. Therefore the emphasis of the plan was the development of the rural areas and the classification of the road network so as to permit all- weather access from the rural farms to the market. With this objective, the government set up a programme of gravelling, bridging and culverting the secondary and minor roads.

2.3.6 1979-1983 Part II Development plan

During this plan period, the government was to give special attention to the provision of underdeveloped links and bridges and improvement of existing classified as well as rural access roads throughout the country.

The Busia - Malaba (D255) was one of the projects in the minor road programmes with this allocation.

Project name and number(D255)	1978/79	1979/80	1980/81
	----	------	-----
	1981/82	1982/83	K$'000
	110.0	-------	110.0
Total	131 391 23044200		

2.3.7 1984-1988 Development plan

The national road network extended to 54,58 kilometres of which 6,721 were paved. Of the total network, about 12 percent of the total network were classified as international and trunk roads, 14% as primary roads, 67% as secondary roads and minor roads (including rural access roads), and about 7% as special purpose roads. The plan period was part of an emphasis towards strengthening of paved roads towards

up-grading and maintenance of unpaved roads already in place. Also the motorised mode of transport was a focus of the government policy.

The role of the private sector was realised as important in the development of the road transport by the fact the bulk of the commercial and passenger vehicles are privately owned.

2.3.8 1989-1993 Development plan

During the plan period, the previous road network was to be upgraded, strengthened and rehabilitated with a view to improving communication and transportation in all corners of the country especially in the rural areas. Priority was to be given to further enhancement of Rural Access Roads and Minor Roads Programmes. For Busia district then, to ease the pressure on road passenger transport, consideration was to be given to enhancing the contribution of the rail system to passenger transportation along the Nakuru-Malaba railway line.

2.3.9 1994-1996 Development plan

As envisaged in the development plan, the government would mainly be concerned with the provision of funds for additional transport facilities and to cost_effective utilisation of the facilities. The overall objective was to improve the efficiency and the sustainability of the existing transportation system through the mobilisation of human

and financial resources and the restructuring of the institutional framework. The transport network , is the road, rail, marine transport, air and pipeline.

Besides, the government during this period was to pursue a policy framework for the development of multi-modal transport in Kenya so as to enable the country's domestic and external trade to benefit from improved and efficient door-to door transport. Multi-modal transport services here meant the carriage of goods by at least different modes of transport on the basis of a single contract document from a place in one country to a designated place of delivery in the same or another country.

2.3.10 1997-2001 Development plan

The policy initiatives that the government was to pursue were, the government was to give top priority to maintenance and rehabilitation of existing roads. The this was to include intensive effort on:

-Improving road maintenance by strengthening the management and institutional framework for management of roads. Action was to be taken to strengthen the technical and policy making capacity of the ministries concerned.

-Capacity building and increased reliance on the private sector for road maintenance and construction.

-Provision of adequate funding for road maintenance, including urban roads.

-Establishment of guidelines for transport management and use of road maintenance funds.

-Modalities for setting priorities for road investment.

-Establishment of additional dual carriage ways and replacement of roundabouts with fly-overs and traffic signals.

-Make provisions for pedestrian and bicycle route along future roads.

This plan is skewed towards improving the transportation system in urban areas, with little emphasis on the rural areas. The little indication of concern for the rural areas was maintenance and rehabilitation of the roads and pedestrian and bicycle routes, which however were still not specific to the rural areas.

2.4.1 Infrastructure and economic development

The importance of infrastructure and it`s position in relation to other sectors for the process of economic development is not clear among theoretical authors and practical planners (Hofmeier,1973). There is a deep controversy whether an extensive infrastructural base should be provided prior to all other development activities and the processes or whether a sufficient infrastructure will quasi-automatically be formed as a result of the market forces of a growing economy.

Liberal economists perceive that integration and development of the infrastructure is as a result of market processes, while on the other hand , centrally-planned economy adherents sometimes regard infrastructure as the very basis and the initial ignition for the start of any economic development process. To them it is only through infrastructure that can economic markets function satisfactorily.

After observing the French (1955) revolution Perroux made his observation that development doesn't appear everywhere and at once. It appears in points or development points with variable intensities. It spreads along diverse channels and has varying terminal effects, for the whole of the economy. That development is polarised so that forces involved in the development process work towards clustering of human settlements.

Hofmeier (loc cit,1973) tries to merge these antagonistic views by attempting to explain how both the views can be incorporated. He illustrates that any investor will exclusively base his decision in regard to the location of economic activities on existing natural factors and resources as long as no efficient infrastructure exists. He however argues that with growing economic development, infrastructure creates new artificial locational conditions. This explains why, in this process of economic development, both the compulsion and the possibilities for infrastructural investments are increasing,

which are improving and enlarging the existing markets. It is therefor eminent that infrastructure play a major role in economic development.

2.4.2 The role of rural transport in development

The problems of rural transport can be classified as supply or demand-related (Ogundana 1986). In the latter, there are at least six elements of rurality which affect an efficient, effective provision of rural transport facilities. These are the smallness of traffic volume, the distance over which traffic movers, dispersed spatial derivation of traffic, bulkiness and perishability of rural produce, imbalance of inflow and outflow of traffic, marked variability in demand for rural transport.

Each of the above mentioned features of the rural environment influences the level and structure of demand for rural transport. Foe example agricultural products that are highly perishable will therefore demand quick action if substantial losses are not to occur, they are however bulky goods of low value , which do not command high transport cost. Apart from the export crops e.g. cotton, which are , to some extent able to absorb high transport costs, food crops produced for international consumption cannot withstand high cost. Such crops are thus abandoned at times, left unshipped to urban markets or other demand centres, when transport facilities are either lacking or costly.Another problem is the dispersed spatial derivation of traffic.This dispersed

pattern puts a strain on rural transport demand. In addition many of the rural villages are poorly connected, which can present a free flow of traffic at a low cost.

On the supply side, rural, transport is influenced by the route quality, density and the commercialisation of the different media of transport. The quality of roads, imposes special limitations on transport functioning and serviceability. As to the commercialisation of transport types, head portage is the least commercialised means of travel in the rural areas. The head portage system is used extensively at the household level for carrying low-value products. However in most parts of the rural area, farmers own or rent bicycles to move their products to market in the market centres or urban centres.People also wait at the road side for an available vehicle as well, either to transport their goods or to procure a ride themselves.Since rural transport is not coordinated, much time is lost waiting.

The frequency and speed at which high-order goods circulate in the rural areas, especially on market days, are closely associated with the provision of rural transport and the relative ease with which the urban itinerant traders move in and out of the rural environment. A faster circulatory system of rural products and urban goods and services will generate higher income.

Adequate provision of transport in rural areas can also permit better use of rural land (Chilsom 1966). Unimproved rural transport could confine rural land use to a narrow belt, hindering the exploitation of the rural economy in the areas of agriculture. For example (Adejuygibe 1976), says that agricultural extension workers, travelling doctors, mobile banks and clinics particularly useful in rural areas where roads are tarred and thus useful year round. Mobile banks and clinics are particularly useful in rural areas where medical, services and banking facilities are grossly inadequate.

Rural intersections can be low in general and expensive as well in rural areas, particularly when goods and services meant for urban markets must be moved piecemeal by potters.This is exacerbated by the fact that, in rural areas, there is no adequate facilities for assembling, consolidating, repacking, reprocessing or storing farm products awaiting loading to internal or external regional markets.

Owen (1980), has aptly demonstrated the relationship between the level of mobility and that of economic development. While wealthy countries in Europe and North America have relatively high mobility rates,developing nations in Africa and Latin America shoe low rates. In light of this fact, several authors have argued that the improvement in rural transport would constitute solutions to the problems of rural poverty and underdevelopment in Nigeria, which similarly would be applicable to Kenya.

2.4.3 The role of transport in economic development

Transport is the formative power of economic growth and the differentiating process. The spread of production, trade and ideas is dependant upon movements. (United Nations study 1967). From above statement it is reflective of the view of many scholars. The development of a transport system is very often regarded to be of particular significant importance for the process of economic development of a country. It is generally accepted that a certain minimum amount of transport facilities is absolutely essential to allow development of a modern economy and to encourage economic growth.Folola et al (1986:205), echoes the same view.To him, the transport component plays a special role as a prerequisite for economic development. Transport provides the arteries through which economic life-stream of a community flows: the people, information, raw materials and finished products that build, bind and maintain the society.

The transformation brought by transport facilities is it links the local market to other outside markets.(Hawkins 1962). The immediate effect of improving transport facilities is to lower costs. This may simply mean lower costs of carriage so that total costs are reduced by the amount of the saving in the transport element.

There two dimensions to transport, space and time. Better transport means that the goods can be moved more cheaply through space from the point of production to the

point of consumption. In this dimension, transport has the effect of widening markets, with all the possibilities of economic growth that this entails. In the second dimension, time, improved transport enables big economies to be made in the use of capital. Markets can be served on a large scale because capital in the form of stocks, work in progress and finished goods can be turned over more quickly. This saving in time may often be more important than the growth the markets brought about by the mere reduction in the cost of the carriage per kilometre.

The saving of capital brought about by the increased speed of transport enables and more different types of investments to be carried out with same quantity of savings. In underdeveloped economies this is important, since capital tends to be the scarcest factor. It is also the facilitating factor, because it's wider use will provide employment opportunities for the use of surplus land and labour. There are many grounds for thinking that this is the major connection economic development and transport improvement. Economic growth depends upon the growth of capital which then may be used more productively as fixed capital else where in the economy.

Before capital can be used elsewhere, however, there must be some suitable productive opportunity for it. Such opportunities will be related to the wider markets made possible by lower transport costs which were referred as to as `the first fruits of savings'. In the space dimension, lower costs of carriage per mile reduce the economic

gap between the produce and the consumer so that the effective area of the market is increased. At the lower selling price the consumers who would not purchase before will now be able to do so. Not only will producers be able to sell over a larger geographical area, but they will also sell more in there already existing market, so that there will be both extensive and intensive effects. If these new sales are considerable there will be scope for the expansion of output, which requires fixed capital investment.

In many cases there will be secondary effects as well. The increased output made by the higher value of demand may be achieved at lower costs, if there are economies which can only be obtained when production expands. In this case there may be further price reductions, permitting further extension of the market area. Such effect then depicts `the division of labour is limited by the extent of the market' because the economies of production are achieved through the various manifestation of the division of labour.

The simplest kind is that in which trade and process are split up into more and more specialised branches, because of such specialisation each branch of activity becomes more proficient and this is reflected in tau lower costs. The impetus for such horizontal specialisation can come from the side of demand or supply. The specialist firms in the larger centres exist there because there is a demand for their services, that demand

arises because the firms who buy such specialised services find it more economical to do so than to provide their own.

There is another aspect of division of labour that is equally important and may be possibly be more important in the long run. This is the kind of specialisation that permits the use of more capitalistic methods of production. At the lower levels of output it may be economical for a firm to install expensive machinery to do certain tasks, they will be done instead by some other method that involves the use of labour perhaps using less complicated machinery or no machinery at all. It may well be that some products will not be produced at all in an area until the size of the potential market warrants the installation of the capitalistic methods of production.

There is yet another important influence of transport on the size of the market that is not immediately obvious. Ultimately, the size of any market is limited not by the geography, but by the purchasing power of incomes . Part of this purchasing power comes from industries which themselves depend upon the size of the market.

From the set notion, it is seen that transport occupies a strategic place in the process of economic growth. It is often assumed that all that is necessary for development is the opening up of the transport routes and communications.

In regard to the above contributions of the role of transport in economic development, it need to be crystal clear that the expansion of the transport system is no aim in itself, at least not in the economic context, however in terms of economic consideration transport can always only be a derived variable that is dependant upon the plans and objectives variable of their sections. Transport is often regarded as the most important strategic sector for economic development. Wilson (1966:6-10) distinguishes the different possible effects of the improvements of the transport system:

a) A positive stimulation of economic development through the improvement of the quality of the transport system. This is accomplished by the reduction in the amount of resources that have been spent for the distribution of a given amount of goods or people.

b) A slowing-down of otherwise possible economic growth because of unduly large use of scarce resources in the transport sector instead of other more economic alternatives.

c) An absolute reduction of income in a region or country in which a transport investment had been carried out. This is based on the possibility that products from more advanced areas are flooding the market that had been protected by high transport costs and are consequently destroying the existing structure.

In recent discussions, there seem to growing scepticism against a strong emphasis on the special role of the transport sector as a prerequisite for the economic development. In various ways it has been attempted to show that transport follows economic development rather than precedes it (Hofmeier 1973). Hofmeier gave a critique of these views as follows:

Wilson (1966) argues that it is necessary to underline clearly that transport contributes to the economic growth only in connection with many other factors. Additional social overhead capital in the form of transport facilities may be necessary, but not a precondition for economic development. However Voight(1960) gives another view that clearly indicates the reciprocal relationships between transport expansion and general economic development and to have particular emphasized long-run effects of the transport system and of the various transport modes on the whole regional structure of the a national economy. From his historical analysis of some areas in Germany, Voight shows what a profound influence the transport system has in the formation of economic activities in different regions. He also demonstrates how different modes of transport can have different effects in the different stages of economic development. Development processes originally initiated by the transport system, in some cases show a very distinct dynamism of their own, that influences various areas quite differently. As a result of the influencing forces of the transport system distinct development,

indifference and evacuation zones come into existence. Thus the transport system contributes profoundly to a certain self-dynamism of a dualistic development process.

Hofmeier concurs with this view, in that the development to him not only depends upon a certain given structure of the economy, but rather there are clear reciprocal effects between transport and general economic development that can not be clearly isolated from each other. Regions with originally almost equal potential can develop quite differently as a result of more or less accidental development of the transport sector. Of important influence in this respect is the law of priority concerning the appearance of different modes of transport in a specific area in regard to their time sequence. Voigt (loc cit 1960) seemingly appeals that the developing countries should artificially increase the quality of it's transport sector beyond the apparent needs. Only this would provide the base for the initiation of a balanced market oriented development of all other economic sectors in the future. Government activities should catalyse the drastic expansion of the transport sector, but he seems to trust completely that the market forces will react in a sufficient manner to the changed conditions and will initiate a market type development.

Wilson (loc cit 1966) sees very clearly that a positive effect of any expansion of the transport system depends upon a whole group of other necessary factors and upon integrated approach, but he takes absolutely unsatisfactory account of the active forces

that the transport system has on the shape of the structure of a national economy. He demands an integrated planning approach of the public sector to ensure the desired reactions to the transport investment, but he tends to consider these investments successful particular in areas where there is already a certain economic dynamism. This is certainly correct in the short run, but if does lead to an acceptance of an equal dualistic regional development, because no demand is made for a constituent use of public funds in the transport sector to fight against historically grown imbalances. In this respect, Wilson much more than Voight relies on a natural tendency to bridge these gaps. He takes the distribution of natural resources as a starting point, where as Voight argues that with the originally equal chances can develop quite differently due to varying transport conditions. Wilson does not believe that the transport sector must precede other developments and that it can be the sole initiator of other developments. At the same time he points out that any single transport project will be the most successful in an already advanced and dynamic area.

If the other ingredients of development are not present, however, such as raw materials, population, water supplies,e.t.c investment in transport facilities will be wasted. However transport is an important infrastructure for general development, it also provides general accessibility and convenience. Improvement in transportation facilities increases accessibility hence increases the rate of frequency of movement of people and their goods. If this occurs in the rural areas, innovations have a good

chance to trickle down to the rural areas much faster and thereby enhance rural development(Obiero 1978:104).

In conclusion therefore, transportation networks may be viewed as systems performing functions which affect national, regional or local affairs. These functions can be separated into four objectives. The transportation system can be used to achieve: economic growth, land use service and land development, modal balance and equitable opportunity for mobility to all persons.

CHAPTER THREE: BACKGROUND TO THE STUDY AREA

3.1.1 Introduction

The economic function of an area's transport system is to eliminate the gap between producer and consumer, measured not in kilometres but in terms of cost. The difficulty of this task depends to a great extend upon the geographical features of a region as well as upon it's economic structure. Factors such as topography, climatic conditions incomes and employment levels, human settlement patterns among others have a significant role in determining the type of transportation system in any area. Basically this chapter deals with physio-geographical and socio-economic conditions that influence the use of the different modes of transport (bicycles and motor-cars) in the study area. This information is valuable in understanding the role transport modes play in the growth of Adung'osi market centre in Chakol Division.

3.1.2 Position and areal extent

Adung'osi market centre is located in Teso district which is one of the districts that make up Western Province of Kenya. The district was part of Busia District until November 1995 when it became a full fledged district. The district is bordered by Bungoma district to the north and to the east is Nambale, Busia district to the South and the Republic of Uganda to the West.

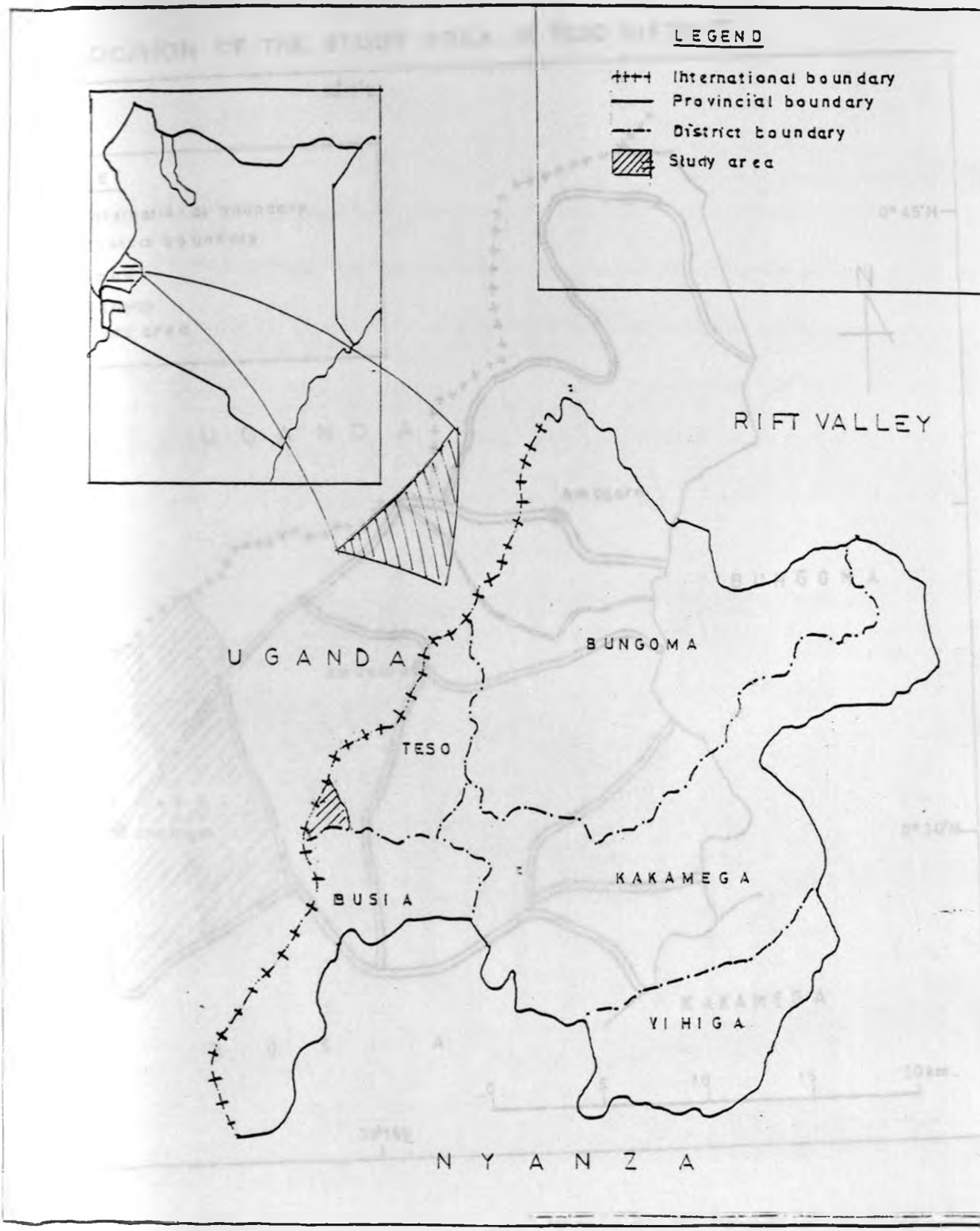
Adung'osi market centre is located in Chakol Division which covers an area of 136 km^2. The other three divisions which are found in the district are Amagoro, Amukura and Ang'urai. Chakol division has one administrative location called Chakol and six sub-locations namely Chakol, Okame in the North, Ang'orom in the East, Otimong in the South and Among'ura and Asing'e in the West. Adung'osi market is located along Busia-Malaba road corridor that is a 14 km stretch, which is a Class C murram road. Along this corridor is Likolis market which is a major market while other local centres are Asing'e, Alupe, Machakus and Ang'orom. Chakol sub-location covers an area of 43 km^2.(Map 3.1 and 3.2 show the national and regional position of the study area).

3.1.3 Topography and relief

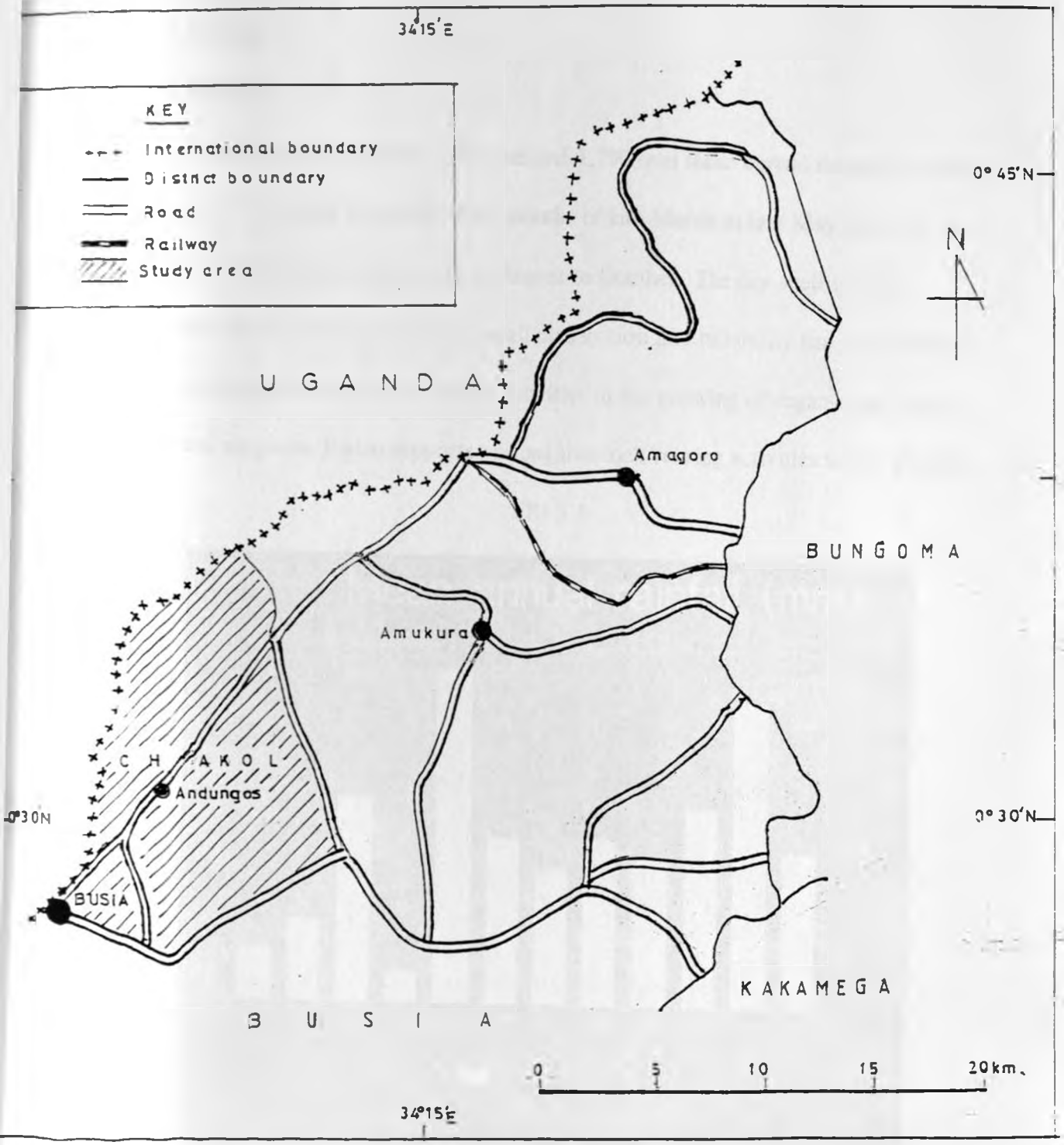
The division lies in an altitude that ranges from 1300 m above sea level in the south to an average of 1500 m in the central and the northern parts. To the north of the area are features of granitic hills and tors such as Amukura.

There are numerous streams in the area, most of which are permanent while others are seasonal. The numerous streams and the undulating topography support agriculture, but also constrain the development of roads due to large numbers of bridges and culverts required during road construction. The hilly terrain in some parts of the division and the sandy soils renders these areas liable to soil erosion which is significant in road construction.

MAP 3.1 STUDY AREA IN THE NATIONAL AND REGIONAL CONTEXT



3·2 LOCATION OF THE STUDY AREA IN TESO DISTRICT

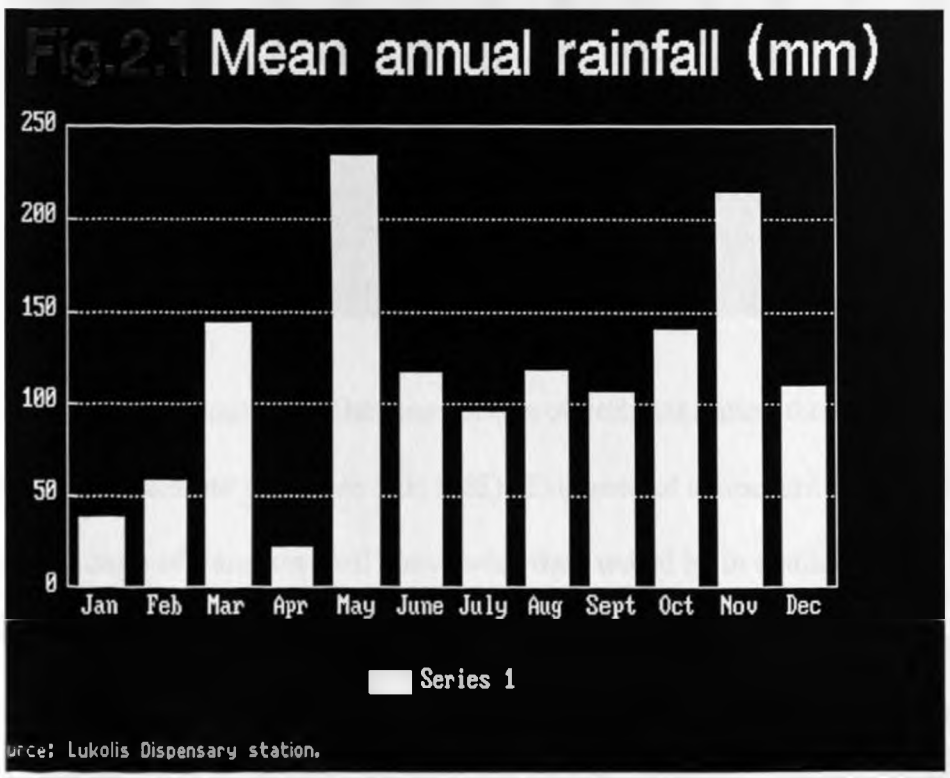


3.2.1 Climate

3.2.2 Rainfall

The division receives between 1,270 mm and 1,790 mm mean annual rainfall as shown in figure 3.1 The long rains fall in the months of late March to late May and 25% of the rains fall during the short rains in August to October. The dry spell is from December through February. The rainfall distribution and reliability has a contribution to the major agricultural and livestock activities in the growing of sugar-cane, maize, millet and sorghum. It also supports various livestock rearing activities in the division.

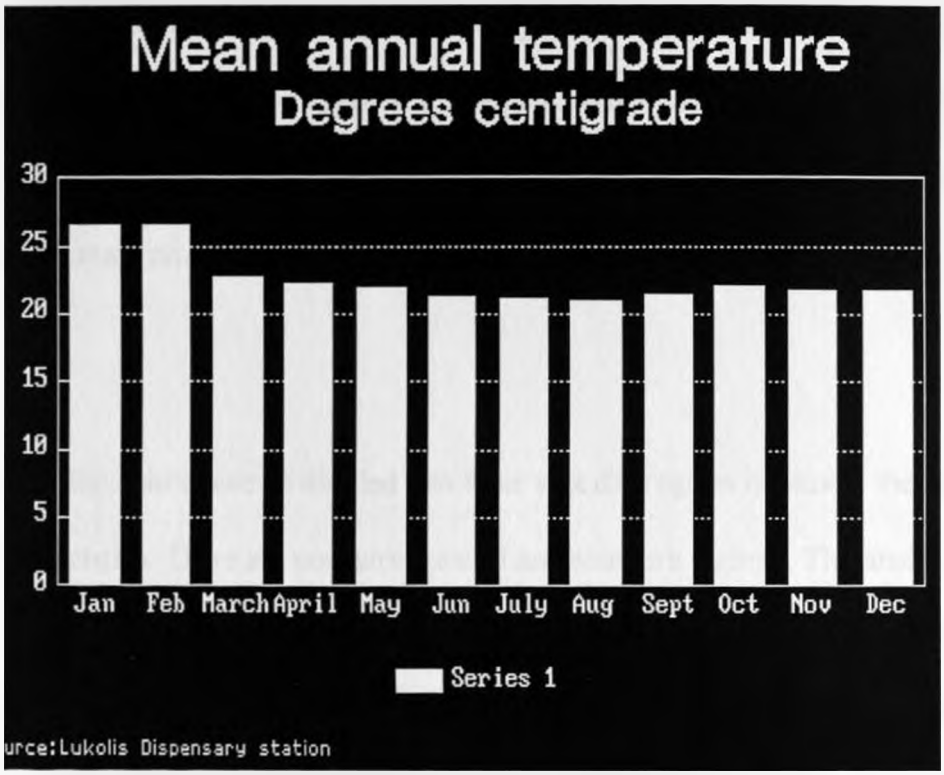
FIG 3.1



3.2.3 Temperatures

Temperatures for the whole district are more or less homogeneous. The annual maximum temperature ranges between 26^0 C to 30^0 C, as shown in figure 3.2.

FIG. 3.2



Some of the major difficulties in the construction of communication throughout Africa are caused by the climate (Hawkins E.k.1962). Extremes of temperature and rainfall raise the real costs of transport well above what they would be in similar conditions in temperate lands. Chakol is fortunate in that although situated on the equator in the interior of the continent, her climate avoids extremes of heat and rainfall. This is due to the predominant altitude which is 1300 m and over,and the temperate influence of Lake

Victoria. The fact remains, however, the division of the year into a cool, wet season and a hot dry season, raises many problems of road maintenance. In the heat of the dry season gravel surfaced roads become desiccated, dusty and corrugated. These same conditions prevent the use of mechanical equipment for their maintenance, since their use in the dry season merely pulverises the compacted surface into more dusty and increases the likelihood of corrugations developing. When rains begin such roads are in the worst possible rutted state. Drainage is generally bad, so that roads on which dust has been the main problem rapidly become muddy tracks in heavy rain.

3.3.1 Soils

The soils in the district can be divided into three specific regions of almost the same soil characteristics. There are northern, central and southern regions. The analysis of soils types indicates that their are 84% of the land is arable. Swampy areas, hill-tops, riverbanks and the foots of the hills have difficult soils and therefore are not suitable for agriculture. Drainage is recommended for other areas which includes afforestation, controlled grazing and sand scooping.

In the study area (southern Alupe) the soil is imperfectly poor drained to well drained, moderately deep to deep sandy loams to clays overlying petrointhnites in shallow parts. These soils have been developed on sand stones.

3.4.1 Agro-Ecological zones

The Southern part of Teso is relatively a cotton growing area, and the production has been falling in the recent past due to a host of problems. It is the most prominent cash crop in the Southern part of the district, while in the Northern part, tobacco is the main cash crop grown. This tobacco is a threat to food security in the area. Other major crops that are grown and are consumed as staple food are maize, cassava, millet and sorghum. Sugar-cane is also coming up as an important cash crop especially towards Amukura, because of it's proximity to the Mumias Sugar belt.

The agro-ecological zones are:

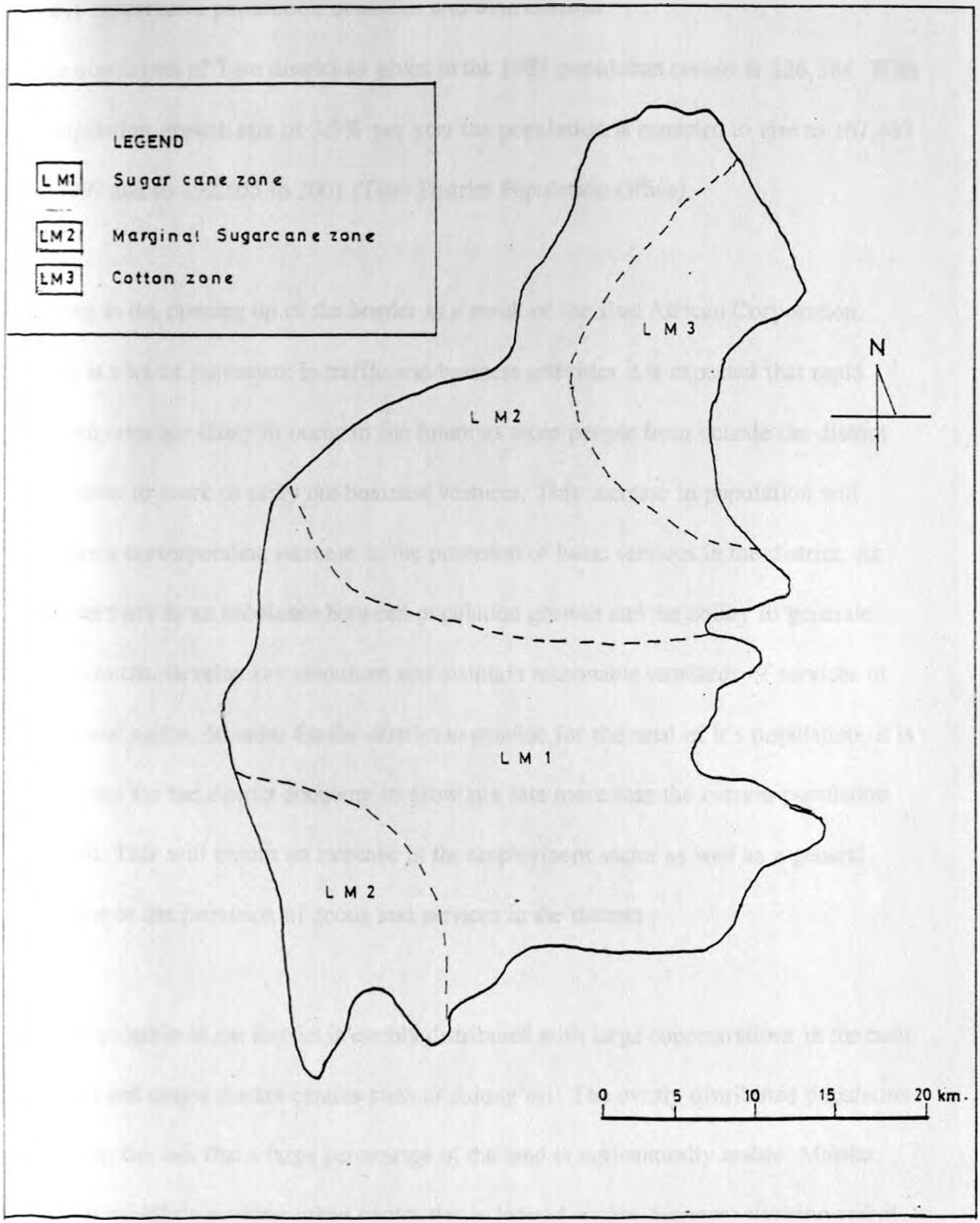
LM 1 = Lower midland Sugar-cane zone

LM 2 = Marginal Sugar-cane zone

LM 3 = Cotton growing zone

From the agro-ecological zones table and map 3.3 the district is an agricultural high potential area.

MAP 3.3 CHAKOL DIVISION AGRO ECOLOGICAL ZONES



3.5.1 Hinterland population densities and distribution

The population of Teso district as given in the 1989 population census is 126,584. With a population growth rate of 3.5% per year the population is expected to rise to 167,487 in 1997 and to 192,655 in 2001 (Teso District Population Office).

Owing to the opening up of the border as a result of the East African Corporation, there is a lot of movement in traffic and business activities it is expected that rapid growth rates are likely to occur in the future as more people from outside the district will settle to work or carry out business ventures. This increase in population will require a corresponding increase in the provision of basic services in the district. At present there is an imbalance between population growth and the ability to generate employment, develop key resources and maintain reasonable standards of services in the social sector. In order for the district to provide for the need of it's population, it is important for the district economy to grow at a rate more than the current population growth. This will ensure an increase in the employment sector as well as a general increase in the provision of goods and services in the district .

The population in the district is evenly distributed with large concentrations in the main centres and major market centres such as Adung'osi. The evenly distributed population is due to the fact that a large percentage of the land is agriculturally arable. Malaba town is rapidly upcoming urban centre that is located within Amogoro division and at

the border with the Republic of Uganda. Many people have come and more are expected to come to the town in search of employment and business fortunes.

3.5.2 Urban population

Teso District is essentially a rural area with most economic activities concentrated on agriculture and livestock. Malaba town is the district's major urban centre with an estimated population of over 5,000 people within it's catchment. Malaba is a rapidly growing town and is the most important `gateway' town in the district situated at the border with the Republic of Uganda, and having one of the best communication network and a diversity of economic activities (both retail and wholesale) and quite a number of services (both public and private). Among the important facilities available include, railway station, banking and postal services, and a National Cereals and Produce depot. Malaba being a border port , there is a greater potential for it growth especially with the inauguration of the East African Corporation.

All other service centres found in the district are market centres. Adung'osi is one of the leading market centres found in the district among others such as Amukura, Lukolis, Ang'urai and Jairos.

Adung'osi has an average catchment area of 43 square kilometres, serving a population of approximately 6,000 people. The centre has a sub-post office, water supply,

electricity, a General Service Unit and a administration police post, two primary schools and two secondary schools. It is a major trading centre in the district. Other market centres which are found within Chakol division are Asing'e, Among'ura and Ang'orom with a catchment population of about 2,000 people. Business in most of the market centres is at the peak during market days which are held once or twice a week. Small-scale traders move from one market to another, depending on the market day. Most of them sell agricultural products such as maize, sorghum, millet, e.t.c. There are also other consumer goods like soap, cooking oil, salt and second hand clothes.

3.6.1 Industrial activities

There are no large industries in the market centre, alike to the whole district. However there are a few light industries like posho mills. Other small-scale ventures which are scattered throughout the district with concentrations in the market centres Adung'osi included, are furniture workshops, metal workshops for making doors and window frames, tailoring enterprises and brick making. Most of the activities are carried out by individual entrepreneurs themselves.

The main impediment to growth and diversity of industry is the inadequate infrastructure particularly roads and lack of electricity in some areas. There is a great potential for the development of most industries. Much of the potential has not been tapped mainly due to lack of capital and the required skills.

3.6.2 Commerce, trade and services

The district's economy is predominantly agriculturally based. Most of the farming is carried out by small-scale farmers. Agricultural products there constitute the life blood of commerce and trade in the district.Small scale traders move from one market to another depending on the market day selling products like maize, sorghum, millet and other consumer goods like soaps, cooking oil and even second hand clothes.

Another set of traders comprises all those with small shops scattered all over the district but mainly concentrated in the small trading centres. The traders mainly sell consumer goods such as soap, sugar, salt, match boxes e.t.c. Many of the retail traders operate on a very low capital base. This is mainly because of the low income levels of the predominantly agricultural community.

The large commercial activities within the district are concentrated in Malaba town which is also a transit point to Uganda, Zaire, Rwanda and Burundi. The main commercial activities comprises of large retail and wholesale shops.The informal sector activities are becoming common in the district. It is an important source of employment for those not employed in the modern sector. The sector includes people in carpentry, tailoring, repair, shops, food stalls all on a small scale.

3.7.1 Transport network

The district has a total road network of 262.6 km covering the four divisions in the district. There is one international trunk road that is tarmacked and whose section in the district covers 14.1 km. The classified roads constitute of 187.5 km while the rural access roads have a length of 75.4 km.

The road network in the district is poorly developed with only the A 104, the Webuye-Tororo International road tarmacked.The rest of the road falls under categories C, D and E. There are only three roads under the these classifications, making the total of classified roads to four in the district.

Accessibility to most of the areas of the district is difficult and this is more felt with areas away from the international trunk road, such as Adung'osi.

Most of the roads in the district are earth roads, are poorly maintained thus making them inaccessible. A good percentage of roads require murraming and more to be newly opened. This will help to open up a large part of the district. Chakol division is flat and has black cotton soil, this makes it difficult for the construction of roads in the area.

Teso District has advantage because the main railway line from Mombasa to Uganda passes through the district. Malaba railway station at the border is very busy, handling goods and passenger trains.

At a more local level, the total road network for Chakol division is 56.7 km and the roads are classified as indicated in table 3.1.

Table 3.1 Road classification in Chakol division

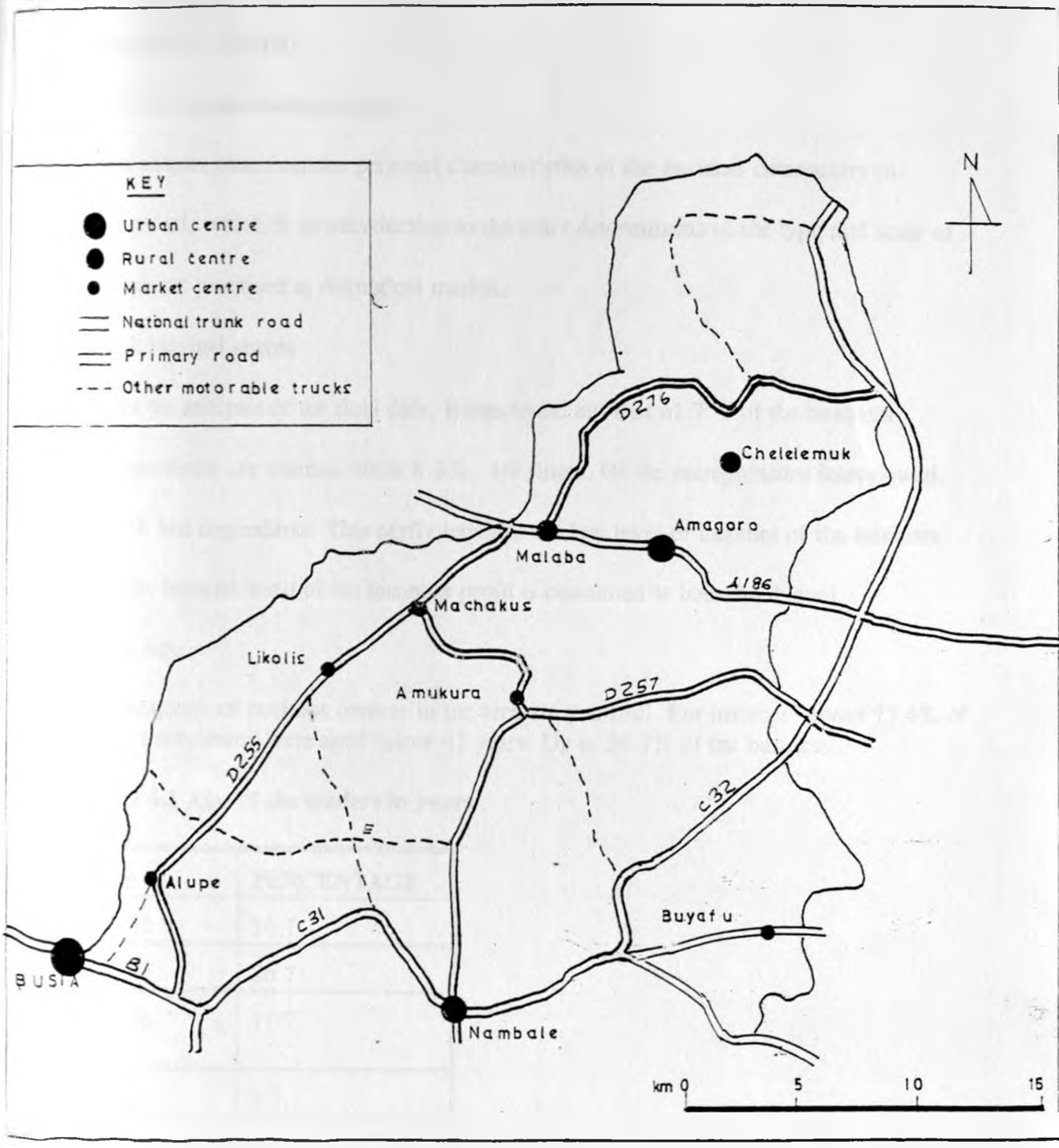
Access road	Class	Distance (km)
Adung'osi - Among'ura	E 156	4
Adung'osi - Amukura	E 150	17.5
Adung'osi - Busia	E 151	8
Malaba - Busia	D 255	12

Source: Field survey, 1997

The operations of matatus and boda-boda are mainly concentrated along Ang'orom-Busia rural access road and Busia-Malaba road. According the rural access road regulations, these roads are planned for thirty motor vehicles per day as opposed to the number currently using the road per day. Currently there are about 90 motor vehicles operating in this rural access road. Most of the motor vehicles are lorries transporting transit goods between Malaba and Busia, to or from Uganda.(Map 3.4 shows the road transport network in Chakol division).

The busiest feeder road is Adung'osi-Among'ura, mainly transporting foodstuffs and manufactured commodities to Uganda by the boda-boda since it relatively shorter compared to other rural access roads. The Adung'osi-Amukura feeder road is under utilised. Most of the people using it are either on foot or bicycles from their household to the market and occasionally the boda-boda use this rural access road.

MAP 3.4 ROAD TRANSPORT NETWORK IN THE STUDY AREA



CHAPTER FOUR: SOCIO-ECONOMIC ACTIVITIES IN ADUNG'OSI MARKET CENTRE

4.1.1 Personal characteristics

This chapter examines the personal characteristics of the business community in Adung'osi, which is an introduction to the other determinants of the type and scale of businesses practised in Adung'osi market.

4.1.2 Marital status

From the analysis of the field data, it was found out that 61.7 % of the business entrepreneurs are married while 8.3% are single. Of the entrepreneurs interviewed, 25.0% had dependants. This partly explains the low level of incomes of the business people, because most of the business profit is consumed at household level.

4.1.3 Age

The majority of business owners in the area are youthful. For instance, about 73.4% of those interviewed were aged below 41 years. Up to 36.7% of the business

Table 4.1 Age of the traders in years

Age	PERCENTAGE
20-30	36.7
31-40	36.7
41-50	11.7
51-60	6.7
61-70	1.7
71-100	6.7

Source:Field survey,1997

owners fell in the 20 to 30 years age group, while 36.7% were in the age group of 31 to 40, 11.7% were between 41 to 50 and the rest above 50 years of age composed 15.1%.

4.1.4 Level of education

The levels of formal education together with post school training may affect the type of business to be operated in terms of productivity and sustainability. The field research indicated that 66.7% of the respondents had a basic education level of primary level. Another 25% of the entrepreneurs had secondary education while 3.3% had higher/ college education. Only 5.0% of the respondents did not receive any form of education at all. From these findings, because of the low levels of education, the resultant opportunities open for employment are in the informal sector which is either business or farming.

4.1.5 Sources of income

Typical of a rural area with an agrarian economy, the majority of the respondents' sources of income is either farming only (58.3%) or are small scale businesses and farming (86.7%), which are farm related. This implies that about 28.4% rely on the small scale business as the sole form of income or employment. The major cash crop grown is cotton, but is a dying and unreliable crop as a source income because of no marketing agents and the pay per kilogram of is low compared to the much resources that are put in the crop husbandry. Other food crops such as cassavas, millet, sorghum, millet and maize are sold at the market to generate income. These

agricultural produce is usually sold at the open air market. However, the kiosks and small retail shops are quite a number and act as providers/suppliers for the basic commodities needed in households. There is a small percentage of people involved in salaried employment (5%) and other categories account for 8.3% who in most cases are more involved in unlicensed cross border trade. The categories and proportions of sources of income is conversely related to the levels of income.

4.1.6 Income levels

The majority of the traders income (51.7%) have an income which is below Ksh. 3000 per month. This an indication of high level of poverty because according to the UN poverty line for Kenya, the poor are those who earn below Ksh.3000 per month. The percentage of those earning above Ksh.3000 progressively decreases - 30.0% earn between 3000-5000, while 3.3% earn between Ksh.5001-7000. Those who earned above Ksh.7000 constituted 11.7% of the respondents. Therefore, the low level of income of the traders in Adung'osi is mainly due to their small scale trading practices.

Table 4.2 Average income per month

Amount in Ksh	Percentage	Frequency
Below 3000	51.7	31
3001-5000	30	18
5001-7000	3.3	2
7001-9000	1.7	1
above 9000	10	6
None	3.3	2

Source: Field survey 1997.

4.1.7 Home origin of market traders

An analysis of the home origin of the market traders, offers insight into the mobility of the population. Of this the high percentage,67.3% of respondents in Adung'osi stated Adung'osi as their home location which suggests a stable local population. Also this reflects that Adung'osi is an important economic centre for the local population. The remainder (36.7%) of the traders stated that they did not originate from Adung'osi. Therefore there are few investors from outside in Adung'osi who have opened up businesses in the study area.

4.2.1 Scale of business activities

Small scale or micro-scale type of businesses are the most dominant type found in Adung'osi market centre. There are therefore no large scale enterprises such as large whole sale or hardware shops. Out of the business operators interviewed, the most dominant type of business (36.7%) were small retail shops and kiosks, followed by those who vend or sell in the market in the market stalls or on the open ground (26.3%). The rest of the businesses were bars, (accounting for 26.7%), the hotels contributing 3.3%, the butcheries being 7% and other types of businesses agglomerating to 30%. What is quite evident is that small scale businesses apparently thrive in this market centre while large scale business are significantly absent. The results indicate that the market place serves as an extremely important employment generator in the region. It shows that there is a high dependence on the market for opportunities to earn money.

Table 4.3 Type of businesses

Business	Percentage
Shop	36.7
Hotel	3.3
Butchery	3.3
Bar	7
Market Selling	28.3
Others and mixed businesses	30

Source: Field survey, 1997

4.2.2 The commodities sold

A profile of the commodities showed that most commodities sold at the market are not bulky in nature, and are already processed. They are demand driven commodities that are readily bought by the population that the market serves. To illustrate this, 38.3% sell manufactured/ processed foodstuffs. This is due to the vast quantity of items coming from Uganda at the border, which are channelled by importers, wholesalers and large scale retailers for resale. These groups of operators sell to market-based small scale businesses. Adung'osi is also a centre of transactions of agricultural produce which is an attractive market to rural farmers as it offers an opportunity to sell their farm produce. 23.3% sell vegetables that are easily available from the farms, while 15% sell second hand clothes and manufactured goods and 8.3% sell other farm products besides the vegetables while other types of commodities add up to 25%.

4.2.3 Prices of commodities

The already mentioned commodities have prices which have been set by the sellers. From the field survey, it was revealed that the prices of commodities in Adung'osi market centre compared to other market centres is fair. For example, 68.3% of the respondents gave this as an answer, while 23.3% considered the prices to be low and 6.7% expressed that the prices are high.

Factors that influence the prices of the commodities are several. Ranking highest was the response of 61.2% which was the margin of profit to be made by the businessmen which was considered as a major influence on the prices of commodities. Transportation costs, is a major determinant to the prices that the commodities will be sold at, contributing to 51.7%. That means that within the fixed prices, the costs incurred in transporting the commodity has to be recovered from the commodities sold which accounted for 13.3%. This implies that prices are a function of demand which includes the availability of customers. When demand is high the prices of the commodities are increased.

4.2.4 Factors that attract business location

There are a range of factors that have attracted traders to open their businesses in Adung'osi market centre. A major factor that has attracted business to be located in Adung'osi as revealed from the field survey is location and transport. From the multiple responses received, 71.7% indicated that convenient location or proximity that enabled them to transport commodities to and from the centre and also being within the reach of their homes mainly influenced the businessmen to locate their

businesses in Adung'osi. Beside these, 26.7% of the responses indicated that the availability of alternative means/modes of transport such as the bicycles or the privately owned pick-ups or public transport for hire `matatus' attracted the traders to have the businesses located in Adung'osi. Other factors include market for those goods to be sold (25%). Other responses are, 31.7% was cheapness of running a business in Adung'osi compared to other market centres in terms of security, the rent of the business premises and the availability of electricity. Other factors contribute to 3.3%.

Table 4.4 Factors that attract business location

Factors	Percentage
Availability of vehicles	26.7
Alternative modes of transport	38.7
Cheap to transport commodities	31.7
Convenient/near home	71.7
Demand for the commodities	25
Other factors	3.3

Source: Field survey, 1997

4.2.5 Sources of commodities

Traders in Adung'osi source their commodities from various areas in Kenya and Uganda. For example trader can source their commodities from as many as five or more centres. Most of the traders get their commodities from the major urban centres in the region. Majority of them, (73.3%) of the multiple responses), get their commodities from Busia town which is the largest urban centre in the immediate region. The survey revealed that 30% of the traders get their commodities to sell from Malaba town while 51.7% of the responses reflected that

some of the commodities are got from Kisumu, Bungoma and Nairobi. Commodities sourced from these town centres are those that can not be got from the local market centres. For instance, it is only 13.3% and 5% who got their commodities from Lukolis and Alupe market centres respectively.

4.2.6 Area of influence / hinterland

Adung'osi market centre, just like any other urban area has an area of influence or hinterland. Most of the businessmen (96.7%) sell their commodities to Adung'osi and it's environs including local centres as Asing'e, Akites, and Among'orom. However for those who sell their commodities on market days - the periodic market sellers - 20% sell their items in Busia district in general and Busia town in particular.

4.3.1 Functions of Adung'osi market

From the field survey, it can be discerned that Adung'osi performs several functions for it's environs and it's hinterland. These include; infrastructure services, administrative and security, social, commercial and industrial, educational, medical and finally market functions.

4.3.2 Level of infrastructure

The basic infrastructure in place in Adung'osi market centre is electricity, telephone lines, potable water from the water pump, petrol pump and post office. As concerns electricity and water, these are services that are available to people around the

centre. But in the case of telephone lines, post office and petrol pump, these are services which cover much a wider hinterland.

Plate 4.1: Adung'osi market serves it's resident population with water, which is drawn from the centre's water pump borehole.

4.4.3 Administrative and of security

Adung'osi market centre provides administrative function to the locality. It is the divisional headquarters for Chakol Division. Therefore because of this administrative location, it has an influx of the people coming in and going out of the

centre in quest of the administrative services. Besides, the centre also has a chief's office, where the chief operate from and holds chief's barazas. From the interviews conducted, to find out the purpose of trip, 45% of the respondents visited the centre because of personal activities related to administration.

Adung'osi market centre also provides security services. The centre has an Administrative Police Post and a General Service Unit of the Kenya Police that provides security to people in terms patrols in the area especially in relation to the element of vulnerability because of the centre being an international border market centre.

4.3.4 Social functions

The centre also offers services that are social in nature. The centre has three church buildings which are visited by devout followers on Sundays and other days of religious activities as designated by the different denominations. The most active denomination is the Catholic church which has the largest number of followers. The other denominations are young and upcoming Pentecostal churches. Other social functions include entertainment and social gathering, at the local levels. Out of the businesses that were taken count of, 13.6% were bars, while 18.2% were hotels/restaurants. It was observed while in the field that the premises for these businesses have two fold functions, as businesses and social gathering avenues. The centre does not have any social halls. For sports and games that are held in the

centre, such activities are carried out in the play fields of the schools located near the centre.

4.3.5 Commerce and industrial functions

Economic activities in the rural areas revolve around market centres and local centres. Linking to this system are a variety of actors who include farmers, market vendors, retailers, wholesalers, transporters and the local government.

Data from the field revealed that there are no large-scale industries in Adung'osi. But there were small scale industries. These were mainly posho mills, which accounted for 9.1% of the business enterprises in the centre. Other enterprises were a petrol pump station that contributed to 4.5% of the enterprises. Business retailing were the most prevalent accounting for 36.7% of the enterprises.

4.3.6 Educational functions

Adung'osi market centre plays a major role in providing for the educational needs of the people. The market centre has two secondary schools, which are a girls' boarding school and a mixed day school. There are also two primary schools, one is a boarding school for the girls' and the other is a boys' day school. The boarding schools have an intake not only for it's immediate hinterland, but also far beyond the district, to the entire province.

4.3.7 Medical functions

The centre caters for the health needs not only for it's immediate environ, but also to international level. At the local level, Adung'osi has two private clinics that provide intermediatory services before patients can be referred to the larger health institutions. Of importance and is advantageous to the local populace, is the Alupe Research Institute for Leprosy, which is of international status and has high level medical facilities.

4.3.8 Periodic market days

The market network plays a major role in trading activity. One market is linked to other market by one critical factor: the day of the week on which the market day falls. Adung'osi links with Asing'e local centre on Tuesdays and Friday, Adung'osi links with Akites on Sundays, links with Among'ura on Tuesdays and Fridays and with Lukolis on Mondays and Thursdays. A steady stream of traders routinely run through these very entrenched networks, attending the same two to four market days each week.

The economic function Adung'osi performs is quite evident during the two market days - on Saturdays and Wednesdays. The market which is usually quiet and with little activity gains tempo on market days as it bustles with a variety of activities.
The major commodities sold as was observed during the fieldwork were foodstuffs-cassavas, millet, sorghum, maize, groundnuts and vegetables. The main

cash crop sold at the collection point is cotton. Other items include second hand clothes and hardware items such as hoes, padlocks and metal bars.

Plate 4.2: Demarcated zone in the market for selling farm produce (cassavas, maize, sorghum and millet) on a periodic market day.

All the listed items that are sold on the market days are sold in the open air ground and displayed on the ground as the potential customers are beckoned by the sellers through calling out of the prices and the items that are being sold.

The role transport plays in facilitating the economic activities that take place on market days is quite evident. The flow of traders to the market starts as early as 7.00 a.m when there are many matatus operating along Malaba-Busia road. The economic activities also subside as early 2.00 p.m in proportion to the reduced number of matatus that operate at this time of the day.

4.4.1 Trend of growth of Adung'osi market

Most of the registered businesses in Adung'osi were registered between 1960-1980 and after 1995. This point is well illustrated by the fact that 23.3% and 21.7% of the businesses were started in 1960-1989 and 1996 respectively. Otherwise, the growth of Adung'osi market centre has been stunted. In 1990 and 1991, 3.3% businesses were registered for each year, while in 1992, 10.0% were registered, in 1993, 15.0% were registered and in 1994 and 1995, 11.7% were registered for both the years. This leads to seeking for an explanation to the factors that have slowed the growth of the market centre.

4.5.1 Factors hindering development

An assement of the effect of the RARP to the daily lives of the people, indicated the varied perception the traders and the local community had towards the effect of

the roads to their daily activities. According tho the traders, the major factors recorded in the multiple responses that have slowed the development of Adung'osi market centre to progressive growth of business is poor access road conditions (76.6%). While high transport costs were cited next at 55.5% of the problems faced, so that much of the profits accrued from the business is spent on transporting the commodities.

Besides, unreliable means of transport was mentioned by 25% of the respondents as a factor hindering business development. The poor road condition results in delay in the delivery of perishable commodities such as bread and milk which get to the businessmen as late as 12.00 noon, especially during the rainy season and is a problem that is faced by about 23.3% of the businessmen.

Consequently 28.3% of the traders cited low demand of some of these commodities that are delivered late as a problem, since they get stale.

Lack of credit is one of the serious constraints identified as affecting the survey respondents. In addition 15.4% felt that another major problem is that of insecurity which deters large investment in Adung'osi. This is mainly attributed to cross - border theft from Uganda via Among'ura local centre. The other major issue that is detrimental to business growth (which is 11.5%) is the lack of mechanism to control prices, so as the prices of commodities keep on fluctuating. The local traders also

feel that they receive unfair competition especially from the big wholesalers who sell their commodities at lower prices compared to their retail prices.

4.6.1 Rural access roads

4.6.2 Benefit by the community from the Rural Access Roads

However the rural access roads have been perceived to be of benefit to the community. There are three access roads that are linked to Adung'osi. These are ; Amukura-Adung'osi which is a stretch of 17.5 km, Among'ura-Adung'osi which links Adung'osi market centre and Among'ura local centre to Uganda, and the Busia-Ang'orom rural access road, a stretch of 4 km which intercepts Busia-Malaba road and thus reduces the distance from Adung'osi to Busia by 4 km. According to the community, of the respondents interviewed, 95% responded positively that they had benefitted from the rural access roads and only 3.3% gave no as an answer to that particular question. An analysis of the benefits received from the rural access roads revealed that such access roads have made accessibility to distant markets possible. Actually in the survey, 81.1% gave this as their response. For instance before the Adung'osi-Amukura access road which is a stretch of 17.5 km was constructed, in order to have accessibility to Adung'osi from Amukura, one had to travel to Malaba - 12 km, then from Malaba to Amukura, 6.5 km, which is a longer distance. Similarly, from Busia to Adung'osi, one had to travel along Busia-Malaba road then join the Kisumu-Busia road which totalled a distance of 12.5 km which instead has been shortened to 8 km.

Other respondents showed that there was reduced loss of their farm products in terms of perishability. The livestock products like milk could now be transported to the market quickly without perishing. Furthermore 20.3% of the respondents stated other advantages. These included stabilised costs in terms of the prices of the commodities sold and the stabilised fare for taxi bicycles (boda-boda) that use these access roads.

4.6.3 Problems associated with the Rural Access Roads

Amidst the benefits apparent from the Rural Access Roads, there are certain problems that have cropped up. One of the problems noted by the local community was the poor state of the road surface conditions. For example, of the the multiple responses recieved, 55% respondents complained that the feeder roads are narrow and rugged so that in some sections of the road, motorised vehicles could not pass through easily. Also some parts of the road have rocks standing out in the middle of the road, thus are an impediment to optimal accessibility by the road users.

The other major issue cited was the poor involvement of the community on decision making interms of routing of the Rural Access Roads. The Adung'osi-Amukura access road apparently was put in place without the involvement of the community. About 26.8% of the responses indicated that the government was the single agent that decided to locate the road at it's present location which was against the community's will because the access road cut across Chakol Girls' Secondary School land, dividing the school into two compounds. This has resulted to it being

impossible for the school to develop the other portion of land because it has been engulfed by Adung'osi market centre activities.

Plate 4.3: Rugged parts of road surface along Busia-Malaba road.

Slow construction which accounted for 33.9% responses is yet another problem. Some of the access roads that were started off have never been improved on again as they needed final finish such as dredging by tractors. The consequence is, some of access roads have become bushy and impassable and some of the bridges do not have barricades at the side, thus posing a danger to the road users.

4.7.1 Opportunities for institutional involvement

4.7.2 Non-Governmental Organisations

In exploring the possibilities of helping alleviate the problems faced by traders in Adung'osi, the role of NGOs in giving supplementary support in terms of raw materials, transport facilities, credit facilities, funds or community mobilisation and training was investigated. However, the role that NGOs could have played in enhancing the already cited potential opportunities is negligible. Majority of the respondents (80%) indicated that there exist no NGOs in Adung'osi and neither have they assisted in any aspect as far as alleviating the problems faced by the community is concerned. But 6.7% of the respondents revealed that certain NGOs had helped them as individuals in setting up business operations. Also certain groups such as self-help women groups(e.g `Katama Women Group') had benefitted from certain NGOs they had approached, which gave then starting capital to set off their tailoring and uniform distribution business activity. Otherwise, there is definite need for the involvement of NGOs in helping to solve the already mentioned problems.

4.7.3 The role of the Local Government

The Local Government plays an important role in the life of a market town, having the authority to implement regulations which greatly enhance or conversely detract from the growth and stability of a market centre.

It was observed that the market revenue collection is poorly done. Accounting procedures are relatively poor. In many instances, local officials from Teso County Council did not know how much had been collected in market fees over the past year. In some cases, no records were kept whatsoever regarding tickets received, tickets returned, or revenues collected on any typical market day. Some of the market sellers interviewed had not paid for their licences for the year.

Market fees are undercollected due to lack of organisation and monitoring. The market user fees on market days for market sellers/vendors was inconstitently and disorganisedly collected. This is mainly because of lack of vehicles from Teso County Council to ferry the personnel to Adung'osi market centre.

For a long time, the government has born the sole responsibility of providing infrastructural facilities to the community . But with time, it has proved to be a constraint and therefore the facilities that were previously put in place have deteriorated in standard as far as their level of provision of services to the community is concerned. With time the government involvement seems to be reducing. In Adung'osi, the government involvement, in improving the Rural Access Road was seen in terms of construction of the Rural Access Roads Programme, especially when the road was initiated. Then, in maintaining the roads (such as dredging with a tractor when there are so many potholes) it's role is minimum if none at all. In conclusion, the respondents perception of the role played

by the government in alleviating the problems encountered by the business community was mixed.

Plate 4.4: Ministry of Works Unit for Rural Access Road maintenance in Adung'osi.

CHAPTER FIVE: MODE OF TRANSPORT USED IN ADUNG'OSI MARKET CENTRE.

5.1.1 Overview

This chapter deals with the major mode of transport used in Adung'osi which are mainly the matatus, boda-bodas and walking. The problems associated with the use of these modes are also highlighted with a view that the alleviation these transportation problems could facilitate the growth of the market centre.

5.1.2 Adung'osi as a communication hub

In all the four divisions found in the district, each division has a major market centre that is a centre for the boda-boda operations. In Amukura Division, the centre is Amukura market, in Amagoro, the centre is Malaba town,in Ang'urai, the centre is Kimaiti market centre and in Chakol the centre is Adung'osi market centre. Adung'osi market is considered to be a communication hub because it is connected to all the market centres mentioned above and is more easily accessible except Kimaiti. Besides, Adung'osi is situated at a junction which connects it to the local centres around such as Among'ura, Okame, Ang'orom and Asing'e, as people come in and go out to trade. In addition, Adung'osi market is also situated along the Busia-Malaba road.

5.1.3 Purpose of trip by the commuters.

As mentioned in the previous chapter, Adung'osi market centre provides a number of functions. In terms of the purpose of trips made to the centre, three types of responses were given. A substantial number (35%) of the respondents visited the centre because they had some business to do in the centre or check on the operations in the market centre or supply and deliver some commodities to the traders. The greatest group (45%) of the respondents visited the centre because of some personal/family commitments they were involved with in the centre such as to grid maize in the posho mill, buy some commodities in the retail shops, visit a friend or the church. But still a significant number (20%) of the respondents commuted to the centre because they worked in the centre either in the formal employment as teachers, police officers and business employees. Others were employed in the informal sector occupations such as bicycle repairing, masonry and carpentry.

From the analysis then, deductions can be made that Adung'osi market centre meets the administrative, cultural and economic needs of the population it serves.

5.2.1 Fares charged

The fares charged for both motorised and non motorised mode of transport in Adung'osi are perceived to be high. About 85% of the respondents gave this as the answer, while 10.0% considered the fares charges to be fair and 5.0% considered the fare to be low. To pay to the nearest centre such as Likolis which is 10

kilometres away from Adung'osi market centre, 10% of the respondents said that they have to pay Ksh. 20, while for a place such as Busia which 10 kilometres 50% said they have to pay Ksh.21-60 and for Malaba, 5% said they paid Ksh.61-100. There are several underlying factors which according to the respondents influence the fare charged and for mode choice.

5.2.2 Factors that influence fare

From the responses got, 25% of the responses indicated that the margin of the profit to be made by the operators, is what determines how much is to be charged by the them. Other responses indicated that 20% of the charges for fare fixed is determined by the operators themselves with no regard to other factors that come into play. However 15% of the responses reflected that the poor state of roads is a major determinant of the fare fixed, especially during the rainy season when the road is slippery and muddy rendering the road almost impassable. To some respondents (5.0%) showed that there was no standard for the fare charged, therefore the fares were fluctuational, and as such it is not possible to deduce what influences the fares charged.

It is therefore evident that because of the costs incurred in operating and maintaining the `matatu' type of business in providing public transport as a service, the fares have to be high enough to cover for the operational costs incurred.

5.2.3 Reasons for modal choice

Several reasons were highlighted by the commuters as determinants of mode choice. Convenience in the use of any of the mode was the most significant determinant of modal choice at 60% . The next determinants for mode choice were availability of the mode at the time of travel and the travel time to destination which were 15% each.

There are times when there is no alternative mode of transport to be used by the commuters at the time they intend to travel, therefore they have to use any available mode. About 10% of the respondents gave this as an answer.

5.3.1 Public transport modes

5.3.2 The transport situation in the study area

There were few public transport service vehicles (matatus) and this caused long waiting hours and delays in travelling.

The main Busia - Malaba road, that joins the two border towns, Malaba and Busia town is very rough with wide and deep pot holes. During the rainy season, the motor vehicles get stuck in the mud and as a result no or few `matatus' use the road because it is impassable. Therefore the general tendency is that the demand for matatu transport is usually greater than supply. This consequently leads to high overloading, high trasnport charges and harassment of traders. It is in view of these problems that the boda-boda operations have become popular.

5.3.3 Bicycle mode of transport

The bicycle is used as a form of public transport for hire that is available to the public. It is popularly known as boda-boda because it was first used along Kenya-Uganda border, when motorised public transport system collapsed in that country in the 1970's to ferry the commodities that were being carried across the border. Through this means the word customarily begun to be used for the bicycles that were used for public transport.

In an attempt to make this form of transport be officially recognised and be institutionalised, the boda-boda operators have formed associations that are used as institutional frameworks for their operations. During the field survey, one of the associations interviewed was `Kodak' self help group, which had it's operating base at Adung'osi market centre.

5.3.4 `Kodak' self help group

`Kodak' is a Teso word meaning carry or lift. The group was started in 1996. The association's main objective was to alleviate transport problems that were being faced by the community around. The group aimed at making transportation easier and affordable. Through this association the boda-boda members have been able to provide a basic service to the community and also earn an income.

5.3.5 Functions of boda-boda

The boda-boda as a mode of transport performs functions that have eased the adverse transport situation that was faced by the businessmen and the community as a whole. An interview with the association members and commuters indicated that the boda-bodas have several advantages such as the fare charges are low, stable and negotiable between the customer and the operator, while on the other hand the public service motor vehicles are higher, fluctuating and unnegotiable. The fare charge for the boda-bodas is a function of distance to be covered and weight of the commodity to be carried. However for the passenger whether young or old, the weight is not considered (the fare structure is negotiable on distance factor only).

Plate 5.1: Boda-Boda carrying load to maximum capacity

Table 5.1 Fares for passengers and for sugar (100kg) in relation to weight and distance covered (km).

Place	Distance from Adung'osi	Charge(Ksh) for sugar (100kg)	Charge for one passenger
Among'ura	4	100	50
Busia	6	100	50
Bumala	16	200	100
Malaba	14	200	100
Tororo	30	400	200

Source field survey, 1997.

There are times when fares vary. The operators have an allowance for `special hire'. This is a situation whereby the passenger is in a hurry and would like to reach their destinations in the shortest time possible. The underlying argument here is that the operator will have to cycle at a faster speed, and this implies greater use of energy by the operator and the many risks that are to be undertaken. Therefore, the passenger will have to pay a higher amount of money. For instance from Adung'osi to Busia, instead of the normal fare of Ksh.40 one will have to pay Ksh.50.

Another case in which the fare varies is when one becomes a regular customer of the operator. Because of this accustomed relationship, usually one has a discount of either Ksh 5 or Ksh 10 depending on distance and the service demand situation.

Special charges are also applicable in situations whereby the customer needs to be taken to their destinations after 7.00 p.m and at dawn. Because of the risks implied

such as being hijacked or being attacked by thugs, a higher fare than normal is charged.

A variety of commodities are carried by the boda-boda which are mainly consumer goods such as sugar, wheat flour, maize flour, cooking fat and paraffin. The traffic volume is mainly along Adung'osi - Among'ura access road, carrying the above mentioned commodities to and from Uganda.

The boda-boda carry an average of 5-10 customers per day. Although there are about 110 registered boda-boda members on any particular day, there are an average of 40 operators in business. Therefore given the number of 40 boda-bodas and each transports 7 customers in a day, then in total about 280 passengers are transported by the boda-bodas. This is a significant number towards the alleviation of the transport problem.

Another aspect of the boda-boda is the employment creation. The boda-boda has created employment to the youth in the area. The records of the groups show that the age bracket for most of the operators is between 20-25 years old. Out of all these, non is female, the reason being that the activity is demanding in terms of physical energy and it is also time consuming. The average monthly income from the bicycle hire operations is Ksh 4,000 per head for the approximately 110 youths registered as operating the boda-boda business.

During the market days in Adung'osi and the nearby local centres such as Asing'e and Ang'orom, the boda-boda operators have a booming business as they carry the traders' goods to the markets. The boda-bodas have also come to rescue people of the long waiting time that have been experienced when waiting for a motorised public service vehicle. The average waiting time of the travellers for the motorised public means has been between thirty minutes to one hour. They have reduced this long waiting time in that a boda-boda is available at any time when needed for travel since they start operating from 7.00 a.m to 7.00 p.m.

One of the greatest advantages of the boda-bodas have over the matatus is that they can reach the hinterland through the feeder roads and the footpaths, whereas the matatu operations are confined to the Malaba-Busia road corridor.

Plate 5.2: A section of boda-bodas assembled, waiting to carry customers on a typical market day.

5.3.6 Problems faced by the boda-boda operators

With the listed advantages that the boda- boda provides, it does not mean that they have no problems. There is a wide range of problems that the boda-boda mode of transport faces.

Poor conditions of the road is a major liability to the boda-boda. The major corridor that is used the is Busia - Malaba road has which deep and wide potholes and in some cases big gullies have desiccated the road. This has implications on the operations of boda-boda in that during the rainy season the big potholes and gullies are filled with water and therefore the boda-boda passengers are exposed to uncomfortable conditions such as they have to alight and wade in water where there are a potholes or gullies or even when going uphill. Also, there are many incidence of the bicycle skidding and the passengers falling down. All these are risks to the safety of the passengers.

Plate 5.3: A bicycle giving way to a matatu because of the narrow access road.

Beside these shortcomings, the discomfort of using bicycle taxis is aggravated by the fact that there is no shelter from being wet when it rains. The passengers get wet, dirty and muddy as water splashes on them by the passing - by vehicles, which is as a result of the roads being narrow and the motorised vehicles claiming a major right-of-way.

During the rainy season, commodities like sugar, soap and flour, are a risk to transport by boda-boda because when rained on they get wet and either their quality deteriorates or they are completely damaged.

Plate 5.4: Boda-bodas parking along the road because of inappropriate terminal facilities

During the dry season, there are still problems that are faced by the boda-boda such as the road being very dusty, especially when a motorised vehicle passes by. The result is poor visibility by the boda-boda operator forcing the boda-boda to stop for the air to clear in order to, proceed.

The potholes and gullies that were previously mentioned have some technical consequences to the bicycles. The operators complained that the lifespan of their bicycles is reduced because of the poor conditions of the road that causes the bicycles to tear and wear quickly thus they have to keep on replacing their tyre and the delicate parts of the bicycle and weld the broken parts. This results into the boda-boda operation being less cost-effective.

Other issues are security related problems. The operators complained of harassment by the administration police especially before the East African Corporation was effected. Many a time, the operators had to be arrested especially at the police road blocks along Adung'osi - Among'ura feeder road (on the way the to Uganda), because of unanticipated reasons such as the bicycles do not have a bicycle licence or head lamps yet for a long time they had been operating without such provisions.

Other security risks include the operators falling victims because of the type of passengers or the commodities they were carrying. In the interview with the operators, they revealed that because of not knowing what type of commodities or passengers they were carrying they have been arrested and their bicycles confiscated when the commodities are either taken as illegal or being transported to Uganda without special clearance. Certain passengers that they carry at times also turn out to be cross-border robbers who rob them of either money or the bicycle or unscruplous people way lay them in the process of carrying out their boda boda business.

5.3.7 Coping mechanism

To strength the operations of boda-boda and popularise it's use, an association has been formed which at the time of study was in the process of being registered with the Ministry of Culture and Social Services. The group has organised itself in that it has a chairman, secretary, treasurer and a traffic officer. This committee oversees the activities of the group and attempts to solve the problems that face the group. To ensure the safety of the customer, the traffic officer ensures that accessories such as peddles and lamp lights are in place and in a good condition in the bicycle. For identity in case of an accident, any problems or complaints, each member of the group is given a number which is indicated on the bicycle plate both at the front and behind, and on the operator's uniform.

To reduce discomfort faced by the customers, the behind carrier seat has been improved by having a soft seat cushion fixed. Also on the left hand side of the bicycle at the wheel axle, a metal has been fixed so as to act as a pivot for the feet, of the passenger while seated on the bicycle.

The association has tried to sustain the operations of the boda-boda by having a joint account fund, whereby each month, they contribute money to each member of the group to maintain his bicycle.

5.3.8 Problems faced by users of boda-boda as mode of transport

For those commuters who use the bicycle mode of transport, an array of problems were cited. For example, 50% of the responses indicated that when one uses a boda-boda, one is exposed to risks of accidents such as being dropped down by the operator due to loosing of balance either uphill or downhill and motorised vehicles and also being exposed to climatic hazards such as intense sunshine/heat or rain or cold. The other problems are this mode of transport is slow in speed (15%) and has a small carrying capacity of goods and passengers, (15% and 10% respectively). Another 5% of the respondents cited discomfort in the use of the bicycle and another 5% cited the tiring effect of the mode of transport on the passenger as problems faced with this mode, because of the fixed sitting position. However 15% of the responses indicated that they experienced no problem in the use of the bicycle mode of transport.

5.3.9 Advantages of using Boda-boda

Despite the bicycle as a mode of transport having a number of disadvantages, it has it's own advantages. The greatest advantage is the bicycle is easily available to the local people, there being over 200 bicycles including the personal bicycles which can be hired in case of need, to operate as taxis in Adung'osi market centre. Compared to the matatus that are only ten in number, the bicycles are more.

The other aspect is that the commuters viewed the bicycle cheaper to travel with because the fares are less rigid and negotiable. The cheapness accounts for 35% and

negotiability of the fares account for 15% of the responses received on the advantages of using this mode of transport.

Another advantage is the bicycles can use the feeder roads and footpaths, carrying the passengers up to the homestead (door-to-door) if the routes to be used are passable while the matatus, only operate along the Busia-Malaba road.

5.4.1 Matatu mode of transport

As previously mentioned in this chapter, the matatu as a means of public transport are fewer, compared to the bicycles. There are about ten matatus in operation. The main type is the mini-bus with a carrying capacity of 25 passengers seated. However, the matatus are always overloaded, especially during the market days when the traders have to carry their goods to the market.

Plate 5.5: Hired trucks are used as alternatives to the inadequate availability of matatus.

5.4.2 Hours of operation

The matatus usually start operating as early 6.00 a.m in the morning and they end their operations at 7.00 p.m in the evening. However on Sundays, the matatus start operating at about 8.00 a.m and wind up their operations as early as 5.00 p.m.

5.4.3. Advantages of matatus

The greatest advantage in using the matatu is it's fast speed compared to other modes. 45% of the responses reflected that (for a distance of 10 kilometres) from Adung'osi to Busia would take about 20 minutes, on a bicycle, 45 minutes while on foot about one and half hours. Another advantage of the matatu is the big carrying capacity of the mode. It is possible to carry bulky and voluminous pieces of luggage with this mode. That is why on market days, most of the matatus carry many pieces of luggage. 15% of the responses gave safety of the goods and passengers in the use of the mode as an advantage over the other modes of transport. A passenger is not exposed to accident hazards such as falling from a vehicle or being knocked down when compared to the bicycle which is a frequent phenomena. 5% of the responses felt that the matatu would take them to longer distances destinations such as Kisumu and Bungoma while the bicycle can only carry then over short distances.

5.4.4 Problems of matatu

In the use of public service matatus, the travellers face a number of problems. The major problem faced is the harassment of commuters by the matatu operators. 30% responses indicated that the operators harass the passengers, especially when it is in the rainy season when their is scarcity of vehicles and demand for their use is high. During the dry season, 25% of the respondents said that another problem they face matatus is inconveniencing in terms of the matatus being very dusty, therefore the seats are dirty

and dusty and also the air they inhale is too dusty resulting in coughing. Another 25% cited problems with the fares. To them travelling in matatus is quite costly especially in comparison to their average income per month and to other modes of transport. 5% of the respondents complained of discomfort as being a major problem especially in terms of potholes on the road making the vehicle bumpy especially with the congestion and poor conditions of the vehicles.

5.4.5 Waiting time

In using the matatus, one of the major problems faced is the long waiting time by the passengers. Out of the responses got, 60.0% gave the waiting time for one matatu after another has left as 30-60 minutes, while 15% gave 60-90 minutes as the waiting time and 0-30 minute as the waiting time accounted for 25%.

From the above figures, the passengers have to wait for a long time to get a matatu. The situation is worse on Sundays, when most of the matatus do not operate. The waiting duration causes the commuters to prefer using the bicycles or walk on foot.

Plate 5.6: Long waiting time for matatus by passengers, as they take long to fill.

5.4.6 Matatu as a source of employment

The matatu employs a number of people - a driver, money collector (manamba) and turn-boy. Each of these three has a specific role to play. The driver's work is to drive the vehicle and do it under the instructions of the turn-boy. The money collector collects money from the passengers and makes the sitting arrangement of the passengers, while the turn-boy ushers in and out the passenger and tells the driver when to stop. It was observed that the turn-boy and money collectors are

rough and harsh in the handling of passengers, especially the elderly whom they deemed to be very stubborn and if not very stupid.

5.4.7 Monthly income

Out of the interviews that were carried out, the driver and the money collector are the employees of the matatu owners. The turn-boy is employed through the arrangement between the driver and the money collector. The driver is given a basic salary of Ksh. 5,000 per month. The turn-boy is payed on a commission basis, 10% of the fare of the passengers he has ushered in. In a month on average, a matatu generates Ksh.20,000 - 30,000. But during the peak season in April, August and December, it can generate more revenue.

5.5.1 Travelling on foot

The majority of the rural people use this mode of transport mainly because of two advantages as it has been reflected from the field survey. 45% of the respondents walked on foot especially for short distance trips because of the convenience aspect. About 10% of the short distance trips made are less than one kilometre, while 20% of the trips made are a distance of two kilometres. The trips made for a distance of three kilometres constitute 15.0%. The high proportion (35%) walk for four kilometres and those who walk for five kilometres and above contribute about 20.0% of the trips made.

Another aspect is at any time, one can travel and is not limited to the route to be used because they can use alternative routes and `short cut routes'. The other aspect is the monetary element, 33% of the responses showed that they use this mode because it is cheap and there is no monetary expenditure incurred as fare for travel. However, because of the advantages of the already mentioned modes, for the pedestrians there is a high preference to the use of the former. Despite such perspectives 67% of the respondents felt that there was no unique advantage one experienced in travelling on foot, but they do so because they have no alternative.

5.5.2 Problems faced by pedestrians

The major problem faced when this mode of transport is used is tiredness. 61% of the respondents expressed how hard it is to walk for long distances to and from Adung'osi, especially during the dry and sunny season. Besides being tiring, it is a very slow way to travel and time consuming, (27.8%). As compared to using a bicycle, the bicycle is three times faster than walking on foot. The other problem is that when one is on foot, there is the limited load capacity element compared to the other modes of transport. Therefore the commuter on foot can not carry a bulky luggage as compared to the motor vehicle or bicycle. However, 56% of the respondents felt that there was no problem with this type of mode, since in any case, they did have an alternative (physically and economically). Other modes of transport such as home-made handcarts (plate 5.8) are used as alternatives to carrying luggage for short distances, for instance from the wholesale to the retail shop or from the matatu to the business premise.

Plate 5.7: Home-made handcart is used as a cheaper alternative to carry goods, on shorter distances

From the findings in the field, the most common means of transportation in the Adung'osi area is by foot especially for the short distance trips. However, most of the commuters use the bicycle for relatively longer distances especially if they can afford it. The matatus are mainly used for long distance trips because it is more safe, compared to the bicycle and has a larger load carrying capacity especially preferred by the traders who transport bulky goods.

CHAPTER SIX: SUMMARY OF FINDINGS, RECOMMENDATIONS, CONCLUSION AND AREAS FOR FURTHER RESEARCH

6.1.1 Introduction

The case study has illustrated the argument set out in chapter one that local transport systems exist and that in many rural communities it is thriving and that economic and social development could not take place without it. This local transport system is complementary to the national one and takes over where the other leaves off. It seems clear that the local transport system merits a great deal more attention than it has been given hitherto. The following chapter summarised the major findings and, in so doing, lay the basis for a reorientation in the approach to rural transport planning.

6.2.1 Summary of findings

The level of income for the majority of the traders in Adung'osi is low. A majority (51.7%) earn a monthly income of less than Ksh.3000. This is attributed to factors such as high dependency levels (61.7%), low levels of education(66.7% had basic education of primary level) which all determine the sources of income as either small scale farming (58.3%) and small scale business (28.4%).

The predominant type of business in Adung'osi is either small scale or micro-scale business activities, which mainly provide for the basic day-to-day needs of the hinterland population. The commodities sold are demand driven. Because of the

scale of the businesses, a majority (67.3%) of the traders' home origin is Adung'osi, while the remainder are outside investors.

For any business to thrive, there must be optimal conditions for it's operations. From the field survey, it was revealed that convenience of location and transportation (71.7%) were the major contributory factors to the location of business in Adung'osi.

In terms of sources of commodities, majority of the traders sourced their commodities from Busia town which is the largest urban area in the immediate region. However other lower rank towns such as Malaba town were also sources of commodities. Higher order town like Nairobi and Kisumu sourced specialised commodities/services that would not be obtained locally. As far as it's area of influence is concerned, Adung'osi is the largest market centre in the immediate region and sells 96.7% of it's commodities to local centres like Asing'e, Akites and Ang'orom especially on the periodic market days.

From the field survey, it was discerned that Adung'osi market centre performs several functions for it's hinterland. Those include administrative and security, social functions -gathering and sports, commerce and industrial, educational functions and periodic market days. It provides infrastructural services such as water, electricity an postal and telecommunication services.

An assessment of the trend of growth of businesses in Adung'osi indicates that between 1960-1980, Adung'osi was growing steadily, but after 1990 the growth started declining. The decline in growth is attributed to certain factors that have slowed down the growth of Adung'osi, the factors recorded in the multiple responses is poor access roads conditions (76.6%), lack of credit and insecurity (15.4%) and inadequate mechanism to control prices (11.5%).

The Rural Access Programmes have been of benefit to the rural community. The major benefit, which is conducive to increased development and maximisation of profits is the access roads have made accessibility to distant markets possible(81.1%). Other benefits are reduced loss of farm products (20.3%) and stabilised costs and fare for the bicycles taxis. However a number of problems related to the access road were cited.

The rural transportation policies especially for the Rural Access Roads Programmes are characterised by insufficient co-ordination with other development activities and too much emphasis was placed on high quality design and the use of capital intensive construction technology. Also, the extension of rural road networks was not accompanied by the necessary development of maintenance capacity. There was little community involvement in the planning and implementation of programmes.

In exploring the possibilities alleviating the problems faced by the traders in Adung'osi, the role of NGOs in giving supplementary support in terms of raw

materials, transport facilities, credit facilities, funds of community mobilisation and training were investigated and it was found out that there is a definite need for the involvement of NGOs in helping solving the already mentioned problems.

The role the local government plays in the life of a market towns cannot be overlooked. The study found out that the Teso County Council is charged with the responsibility of collecting revenue, issuing operation licences and provide facilities such as toilets. The study revealed the poor and ad hoc manner in which the council carried out it's duties. There is need for the strengthening of the institutional framework involved in alleviating the above discussed problems.

The transportation problems in Adun'gosi area result to high transport costs, which the users of the various modes have to pay for. The fare charged by both the motorised and non-motorised (boda-boda) are perceived to be high by the users.

The study illustrates the widespread popularity of the bicycle mode in Adung'osi as a means of personal and public transport, and a load carrier. A variety of locally made attachments, are fitted to the bicycles to facilitate the carrying of different types loads. The back wheels of the bicycles are strengthened to increase the load carrying capacity. The popularity of these forms of transport results from the fact that they suit the local requirements and because, being low-cost, they are affordable, and hence available. Furthermore, bicycles provide a more flexible, widely dispersed service, operating in areas where there are no adequate public

service vehicles, as they can be used in poor route conditions. Being small and low-cost, they can operate profitably in areas where there is insufficient demand to justify using motorised transport such as matatus.

A variety of transport methods are used by the traders to meet their requirements. The bicycle is by far the most common method, being used for on-farm transport, trips and from marketing outlets. The surveys from the field showed that the rural trips were either made on foot, by bicycle, or by motorised transport and occasionally by handcarts.

Motorised road vehicles are available to the traders in the form of matatus and pick-up, trucks and lorries for hire. While matatus are used widely by small traders for longer trips, the pick-up trucks for hire provide services directly through private traders and co-operative collection services. These motorised entrepreneurial services fill many of the important long distance transport needs of small holders, and especially for those located next to the main roads corridors.

Walking could be one of the most effective modes of travelling both in terms of costs and space occupied if properly planned for i.e footpaths. But low speed and poor comfort, however (especially in hot or rainy season) limit the common distance to 2-3 km, but longer distances are often covered by poor groups of the community when other forms of transport are not available or cannot be afforded.

Although rural roads are particularly needed for the conveyance of goods, personal movement often predominates. Despite a large demand for personal travel, access to public passenger- transport facilities is usually limited. Yet, where public transportation services are available, they are often unaffordable to many potential passengers. This is the reason why, in low -income rural areas, walking is the predominant form of personal travel.

The overall outcome is inadequate transportation services in rural ares which has adverse consequences and hampers productivity, limits access to services such as educational and health services and isolates much of the population from political and social life.

6.3.1 Recommendations

The development and prevailing conditions of all sections of society in both rural and urban areas as already indicated in the study is affected by the quality of transport facilities and services, and the direction of transportation policies. Access by the rural small scale traders to markets and services is particularly important for rural development. Good road conditions will greatly contribute to a faster rate of economic development. Therefore with the prevailing conditions, there is need to refocus development efforts. As such the study has several recommendations as outlined below.

6.3.2 Government policy:

From the review of government policy on transport development, the policy apparently emphasises the development of road transport at macro-scale and not at local micro-scale level. The government transport policy needs to be reviewed so that the emphasis should be on the development of small-scale projets instead of large-scale projects. Therefore instead of spending much more money on new road constructions, there is need for more focus on making use of the already existing infrastructure, facilities and equipment. There is also the need for the rehabilitation and maintaining of existing road network and a shift from very formalised procedures and approaches, to informal approaches, which allows the target communities to identify, plan and implement their own development priorities. The local people at the grassroots level need to be helped to meet their own needs, using locally available resources where permissable. If followed on a broad scale, these strategies will benefit the underprivileged groups of the population. However to achieve this, a number of approaches have to be overcome first, so as to have new approaches to urban and rural transportation that are effective and implementable.

The government should encourage and promote all efforts that are directed towards favourable conditions for rational decision making on transportation in human settlements. During the planning process, particular attention should be given to the local people's definition of basic needs and to their perception of the implementation process. Every possible effort should be made to involve local communities in decision making on transportation plans and their implementation.

This helps eradicate the feeling that such plans are `government plans' and not for the community, thus giving the people reasons to bear no commitment or responsibility for their own development.

It is important for the government to strengthen institutional frameworks for coordinated decision making on urban and rural development, transportation and on the operation of transportation systems. In this context, there is need to strategize the government's policy in order to promote economic development in smaller towns and market centres in such a manner that we strike a balance in the distribution of employment generating development, which is presently concentrated in the larger towns.

6.3.3 Modification of legislative laws

Modification of legislative laws and provision of modest loans, would accommodate the use of low cost vehicles, which in turn would break the vicious circle that the rural poor find themselves locked in, because of lack of money. The use of simple forms of transport such as bicycles may help in the transportation of loads and short distance trips and reduce time taken by the farmer to get to the market. This will help the traders reduce their dependence on middlemen and thus improve the marketability of their goods.

For example, Ades (1997) stats: `Nothing but a bike can compete with the car in terms of journey, time and convenience for a whole range of short trips. The

bicycle extends local access between nine and fifteen times the area which can be easily be reached on foot. Eight of them can be parked in a space where one car can be parked. It combines well with public transport increasing it's catchment and flexibility. Therefore it breaks the vicious circle of dependency'.

6.3.4 Simpler technology

In countries (such as Kenya) at an early stage of industrial development the application of simple production technologies involved mean that a manufacturer can be more readily undertaken at low volumes of production. This concept can also be applied to the provision of services such as transportation. This feature can reduce the foreign exchange cost of providing an adequate transport system and contribute directly to the enhancement of productive abilities and technical skills. To secure these developments, the flow of information on vehicle types and production techniques should be promoted as a matter of urgency. The government of Kenya should pay more attention to the possible role of low-cost vehicles in their economies and frame appropriate policies accordingly.

6.3.5 Local participation

The local community is likely to be willing to help and contribute to the development process if they feel assured that their circumstances (problems) are understood and that some action, however little, is being taken to improve their situation, even in the form of transportation.

Transportation policies in Kenya should be tailored in such a way that, they have an element of public participation, particularly with regard to relations between policy-makers and target beneficiary community. Liaison between government officials and local residents can facilitate information gathering and discrimination. The local community should have a strong say in the future development of their communities and in many practical ways, can contribute actively to that development (through for instance, footways and road maintenance, drainage and storm water channelling as well as environmental conservation.

6.3.6 Rural Access Roads

To achieve the main objective of providing all-weather access between high potential farming areas and market centres, it is imperative that all the rural access roads be joined to all-weather roads. It is otherwise futile to have these roads joined to either minor or other roads of higher category but which are rendered impassable at certain times of the year.

Whereas it is expected that the standards of construction of Rural Access roads do not have to be particulary high, bearing in mind the construction of these roads uses labour intensive technology, however, the quality of workmanship is important if the target of providing rural accessibility is to be achieved. The road construction should ensure that only the tested and approved quality of murram is used. This is

to guard against the use of any available road construction material which does not last the design period.

6.3.7 Maintenance

Not only should labour intensive maintenance be planned and an integral and permanent feature of the road network created under the Rural Access Road Programme, but the maintenance work should go beyond minor repairs of clearing culverts and clearing vegetation. Planning and financing of road maintenance should incorporate major repairs like gravelling of some sections of the roads.

There should be provision for the involvement of the local people in self-help road construction in their areas. It is clear that the government however much it is willing to develop the Rural Access Roads, the inadequacy of funds cannot be ruled out. On the other hand, the local people having experienced the problem of poor road network, should see the need to organise themselves into self-help groups aimed at improving their access roads. The local administration should mobilise the people to contribute both labour and money resources while the Ministry of Public Works together with the County Council should assist where possible, by providing the necessary machinery and technical staff for road construction and road maintenance. The local beneficiaries of the RARP should be actively involved in road maintenance after the programme has constructed the roads.

6.3.8 Institutional issues

The smallest units, the local councils (Teso County Council) should be financially strengthened and encouraged to begin (intensify) data collection of various aspects of transport in the rural areas under their jurisdiction. This is quite important for Teso District as a new district. Such data could later be retrieved, studied and analyzed, and conclusions could be drawn as to the characteristics of rural movement. This in turn could generate a rural transport policy to guide the evolution of an efficient, effective rural transport system.

Rural transport should be viewed as an integral part of the national transportation system, so that various hierarchies of routes and movement patterns (either rural-rural or rural-urban) can be identified. Both the central government and local government should formulate sound rural transport policies, which would serve to guide in revitalising the general rural economy.

6.3.9 Improvement of the bicycle taxi (boda-boda) services

6.3.9.1 Boda-boda Association

As already illustrated in the text, the bicycle taxis (boda-boda) was one of the popular modes of public transport. The study has several recommendations to make.

One of the problems cited as hindering the effective operations of boda-boda was the weak umbrella association under which the operators organise their activities.

The operators need to be helped in strengthening their association, especially by having them registered under the Ministry of Culture and Social services as a self-help group. This will be the beginning of having effective measures such as clear regulations governing their activities, a constitution, operators identification system, routine supervision and defined management system.

The other problem cited is mismanagement of the association's funds and also personal finances. There is need for training of the operators on business management practises particularly on saving of their income. This could help them save for maintenance and purchase of their vehicles and improve their operations in future. Also they need to diversify their sources of income by having other investments so as to guarantee the security of their businesses.

6.3.9.2 Credit schemes

The operators had attempted to have a device for identification of the operators by having uniforms and number plates on their bicycles, with a freight office at Adung'osi market centre for easier and faster services for transportation of goods. However this was not quite effective because some operators had no uniforms or had worn out uniforms and number plates. Acquisition of items such as uniforms and spare parts could be facilitated by availing credit facilities, possibly through the boda-boda association. The association operators need to be assisted in acquiring credit. The credit can be advanced by banks and NGOs through the association which should act as a guarantor. The association could also access funds from the

District Development Fund especially after the recent National Youth Development Fund that was initiated with an aim of assisting the youth self-help groups.

6.3.9.3 Training

Most of the commuters complained about harassment by matatu operators, discomfort in matatus and accident frequency of boda-bodas especially as a result of the unharmonised operations between of boda-boda and matatus in road usage. One of the ways to solve this issue, is for the provision of parking and loading terminals next to the road side and the market centre in Adung'osi for both boda-bodas and matatus to avoid the boda-bodas being parked along the road.

Also there is need for seminars and workshops to be organised for both the boda-boda and matatu operators to teach them on traffic rules, safety measures and how to co-ordinate these complimentary activities by the two modes so as to root out the hostility, rift and stiff competition between the two types of operators.

The matatus have insurance covers for their modes and the lives of their passengers. In the long term , the boda - boda operators need to insure the lives of their passengers and their vehicles. This will boost the user's confidence in the boda-boda, especially in case of accidents. This will also help the boda-boda keep up with the stiff competition from the matatus.

6.4.1 Conclusion

Rural transport systems play an important role in the development of any rural area. The major result of these transport systems is improved accessibility. The effects of rural transportation programmes (e.g RAR), is the moving of certain localities up the scale of access quality. This enhances the marketability of commodities sold in the market, reduces perishability of produce and increases incomes.

The improvement of most rural roads and transport services linking rural households to the broader economy through the network of towns and market centres on which they depend for marketing of produce and obtaining their supplies and other services helps in diffusion of innovation. Transport systems define the reach of markets and circumscribe opportunities for the rural people. In Adung'osi, those traders who sell perishable goods incur great expenses due to loss of products and poor prices. Provision of transport networks is crucial in reinforcing links between the hinterland and the market centres.

Inadequate transport and communication, means that there will be continued dependency on small scale business that do not produce much income because of diseconomies of scale. The first step in improving the level of economic development in Adung'osi, is to provide transport facilities where they are lacking and inadequate. Many traders are forced through lack of good roads and inadequate transport services especially in the wet seasons, or high freight charge.

The study established the important influence that the existing road has played towards the growth of Adung'osi market centre. Although it is not by any means the only factor influencing the growth, the road system was found to be a very basic element for the successful transportation of local commodities to the market centre. To a large extent, during the rainy season, the roads are impassable, therefore the traders and travellers would resort to using the NMT as a means of delivering the goods and transportation to their points of destination. In such circumstances, the boda-boda proved to be advantageous in terms of affordability, convenience and availability. The transport problems already cited in the previous chapters have had adverse influence on the economic activities that take place in the centre.

Therefore, a good transport system is a crucial element for attaining full development of the economic potentialities in a rural area. Provision of a good road transport system, affordability of the means and their suitability to local conditions will most certainly help in raising their level of income and which will ultimately also raise the national wealth (GDP) and employment opportunities.

The objectives of transportation should be to help efficiency in terms of lower costs, sustainability, affordability and locally adapted vehicle technologies, as well as involvement of the local community in planning, construction, repair and maintenance of local access roads and provision of ow cost vehicles (boda-bodas) and alleviation of transport problems.

6.5.1 Areas for further research

The study was mainly concerned with the relationship between rural transport systems and their economic development of a market centre. The study focused broadly on rural transport network, which included the rural access roads and the various modes used. Because of inadequate time and financial resources as mentioned in chapter one, the study recommends the following areas for further research.

The government transport policy has attempted to focus on the use of non-motorised form of transport and their implication and incorporation in the transport planning process, which has been prejudiced to the urban areas with less emphasis on the rural areas. The study recommends a study be done to extensively and intensively review the government policy on transport and rural development in Adung'osi and how this policy can be applicable, relevant and effective to Adung'osi. This would help in bringing out aspects already mentioned such as the need for the rehabilitation of the existing RAR and the networking of different agencies involved with the possibility of integrating the local community to participate.

The study broadly looked at the three modes transport used in the rural ares, motorised and NMT - Boda -boda and foot. It was quite conspicuous that the boda - boda is popularly used as an alternative to solving the transport problems faced in Adung'osi area. The study therefore recommends that further research should be done on the viability of the boda - boda as an alternative mode of transport in Adung'osi alongside the other two complimentary modes, the motorised (matatus)

and foot. The proposed objective in the study of transport being efficient in terms of lower costs, sustainability, affordability and locally adapted vehicle technologies for rural development can be met through such a study.

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APPENDIX I

UNIVERSITY OF NAIROBI
DEPARTMENT OF URBAN AND REGIONAL PLANNING

A STUDY ON RURAL TRANSPORT SYSTEMS AND THEIR IMPLICATION ON THE GROWTH OF AUDUNG'OSI MARKET CENTRE

Businessmen/traders questionnaires.

Name of interviewer. .....

Date of interview .....

Location .....

Sub-location .....

Respondent's name .....

Sex .....

Age .....

Q1. Is your place of origin Adung'osi?
1.Yes 2.No

Q2.If no why did you move to Adung'osi? (tick accordingly)
1.Availability of vehicles 2.Good transport network
3.Good business atmosphere 4.Others (specify)

Q3.What type of business do run in Adung'osi? (tick accordingly).
1.Shop/Kiosk 2.Hotel 3.Butchery 4.Bar 5.Market selling
6.Others (specify)

Q4.Is your business registered?
1.Yes 2.No

Q5. When did you start your business? (state the year).

Q6. What attracted you to open business in this local centre and not elsewhere. (tick accordingly).

1.Availability of vehicles 2.Alternative modes of transport available 3.It is cheap to travel 4.Others.(specify).

Q7.What influences the price of the commodities/services that you give to the people. (tick accordingly).
1.Transport costs 2.Margin of profit to be made
3.No alternative means transport 4.Others
Q8.In your opinion with regard to the prices when compared to other parts of the district\ country, how are the prices in Adung'osi. (tick only one).
1.Low 2.Fair 3.High

Q9.What is the most common commodity that you sell in the market? (tick accordingly).
1.Vegetables 2.Clothes 3.Other farm products
4.Foodstuffs 5.Others

Q10. Where do you sell commodities listed above? (Please tick accordingly).
1.Adung'osi 2.Busia 3.Malaba 4.Others

Q11. What is the approximate shortest distance you need to travel to reach another market centre?
1.Below 1 km 2. 1-3 km 3. 3-5 km 4. 5-7 km 5. Above 7 km.

Q12. How do you transport your produce to the market? (please tick accordingly).
1.Human portage (on the back or on the head)
2.Animals (ox or donkey drawn carts).
3.Motor vehicles (cars, carts,tractors).
4.Others (specify).

Q13. I chose this mode of transport because of:(tick below).
1.Lack of choice/alternative
2.Relatively cheap compared to others
3.Ease of availability 4.Others (specify)

Q14. What are the present problems with the mode of transport you are using?(tick relevantly).

1.Costly 2.Slow and uncomfortable 3.Lack of choice
4.Arrogance of operators 5.Others

Q15. What problems do encounter in transporting your commodities especially during the rainy season? (tick accordingly).
1.Increased transport charges
2.Lack of/ inadequate public transport
3.Lack of storage facilities
4.Very poor roads (vehicles getting stuck in the mud)
5.Others

Q16. Where do you get your commodities to sell from and how far is it from Adung'osi? (tick accordingly).
1.Likolis 2.Malaba 3.Busia 4.Alupe 5.Kisumu 6.Bungoma
7.Others

Q17. In your opinion what are the major factors hindering the development in this area, in order of acuteness? Scale these problem accordingly, using 1-6.
1.Poor conditions of roads (impassable during the wet seasons
2.High costs of transportation
3.Unreliable means of transportation
4.Inadequate means of transportation
5.Delays in the supply of commodities
6.Others (specify)

Q18. In your assessment what role has the government played in alleviating transportation problems in this area?(please tick below).
1.Provision of technical personnel /funds/raw materials as well as machinery/equipment
2.Organising the community 3.Construction of rural access roads
4.Others (specify)

Q19.Have you as a community benefitted from the rural access road programme (RARP).
1.Yes 2.No

Q20. If yes, which are some of these advantages.
1.Accessibility to distant market 3.Reduced loss of farm produce
4.Employment opportunities 5.Stabilised transportation costs
6.Others (specify)

Q21. What are the weaknesses of the programme and in your opinion how can it be improved to realise more benefits to the farmers in the community in general?
1.Poor involvement of the community in decision making over where the roads will pass
2.Political interference by powerful personalities
3.Poor workmanship in road construction (poor materials used)
4.Slow pass of construction/ implementation
5.Taxes are increased 6.Others (specify).

Q22. What role have NGO's played in alleviating transporting,
1.Provision of raw materials for roads repair/maintenance
2.Provision of transportation facilities
3.Organising the people into associations
4.Provision of the credit facilities

5.Others (specify)

Q23.(a) Are you a member of any cooperative society?
1.Yes 2.No
(b) What is it's name? .....

Q24. If yes, what does it deal with in terms of function?
1.Marketing of your commodities
2.Provision of credit facilities
3.Provision of transport means (facilities)
4.Others

Q25. State all your sources of income.
1.Salaried employment
2.Business
3.Farming
4.Others (specify)

Q26. What is your average income per month?
1.Below ksh.3000
2.ksh.3000-5000
3.ksh.5001-7000
4.ksh.7001-9000
5.Above 9000 (please specify)

Q27. Give any other comments .....

PPENDIX II

UNIVERSITY OF NAIROBI
DEPARTMENT OF URBAN AND REGIONAL DEVELOPMENT

A STUDY OF RURAL TRANSPORT SYSTEMS AND THEIR IMPLICATIONS ON THE GROWTH OF ADUNG'OSI MARKET CENTRE

Commuters questionnaires.

Name of interviewer. .....

Date of interview .....

Location .....

Sub-location .....

Respondent's name .....

Sex .....

Age .....

Q1. What is your purpose of trip here?

1.Business 2.Personal 3.Work 4.Others (specify)

Q2.What is the shortest distance you have to walk from your house to get a vehicle (tick accordingly)

DISTANCE (km)	Time taken (minutes)
Less than 1	Less than 30
1 to 2	31 to 60
3 to 4	61 to 90
More than 4	More than 91

Q3. Why do you have to board a vehicle?
1.Availability of vehicles 2.Alternative modes of transport available 3.It is cheap to travel 4.Others.(specify).
Q4.What influences the fares the transport services you get from the market centre? (tick accordingly).
1.Transport costs 2.Margin of profit to be made

3.No alternative means transport 4.Others

Q5.In your opinion with regard to the fare when compared to other parts of the district\ country, how are the fares in Adung'osi. (tick only one).
1.Low 2.Fair 3.High

Q6.How much do you pay to travel to the nearest town/urban centre? (tick accordingly).
1.Less than Ksh.20 2.Ksh.21 to 60 3.Ksh.61 to 100 4.above Ksh.100

Q7.What is the approximate distance you need to travel to reach the nearest urban centre? (Please tick accordingly).
1. Below 10 km 2. 11 km to 30 km 3. 31 km to 50 km 4. 51 km to 70 km 5. above 71 km

Q8.How have you travelled to the market? (please tick accordingly).
1.Human portage (on the back or on the head)
2.Animals (ox or donkey drawn carts).
3.Motor vehicles (cars, carts,tractors).
4.Bicycle
5.Others (specify).

Q9. I chose this mode of transport because of:(tick below).
1.Lack of choice/alternative
2.Relatively cheap compared to others
3.Ease of availability 4. Faster than matatus
5.Others (specify)

Q10. What are the present problems with the mode of transport you are using?(tick relevantly).

1.Costly 2.Slow and uncomfortable 3.Lack of choice
4.Arrogance of operators 5.Others

Q11. What problems do encounter in travelling especially during the rainy season? (tick accordingly).
1.Increased transport charges
2.Lack of/ inadequate public transport
3.Lack of storage facilities
4.Very poor roads (vehicles getting stuck in the mud)
5.Others

Q12. In your opinion, how is transport in this place?
1. Good 2.Fair 3.Poor

Q13. State all your sources of income.

1.Salaried employment 2.Business 3.Farming
4.Others (specify)

Q14. What is your average income per month?
1.Below ksh.3000 2.ksh.3000-5000
3.ksh.5001-7000 4.ksh.7001-9000
(v) Above ksh.9000 (please specify)

Q15. Give any other comments .....

APPENDIX III

UNIVERSITY OF NAIROBI
DEPARTMENT OF URBAN AND REGIONAL PLANNING

A STUDY ON RURAL TRANSPORT SYSTEMS AND THEIR IMPLICATIONS ON THE GROWTH OF ADUNG'OSI MARKET CENTRE

Interview schedule for matatu/boda-boda operators.

Q1. How did the idea of having matatu/boda-boda operators' association come up? .....

Q2. When was the group started? .....

Q3. Is the group registered? .....

Q4. If yes, how many members does the group have? .....

Q5. Before the group started what transport problems were in existence? .....

Q6. What then are the main objectives of the group? .....
.....

Q7. To what extent have the matatu /boda-boda association solved the transport problems(especially for the passengers)? .....
.....

Q8. How many customers /clients does an operator get per day? .....
.....

Q9. How much money do you get from a passenger per service? .....
.....

Q10. What other benefits do you get from being matatu/boda-boda operator? .....

Q11. In your opinion ,how have the people benefitted from your services? .....

Q12. How do you get to the hinterland of the market centre when your services are required? .

Q13.(a) How do you determine the charges for transporting a passenger/commodities? .....
(b) Is it related to distance travelled? .....

Q14. What are some of the problems you face in the centre as you carry out your duties? .....

Q15 . What role has the government played in attempting to solve the transport problems? .....

Q16. Are involved in any other economic activities? If yes which ones .....

Q17.(i) Why did you choose to operate in Adung'osi? .....
.....
(ii) Do you change your operations and go to other market centres? .....

Q18. How do you recruit your members? .....

Q19. In your opinion what role has transport played in the growth of Adung'osi? ....

Q20. What recommendations/suggestions do you make for the improvement of transport for the area?
.....

Q21. How many public transport cars/bicycles for commuters are available from Adung'osi on the Malaba-Busia road corridor?
.....