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AN ASSESSMENT OF FUTURE HOUSING NEEDS IN SMALL URBAN  
CENTRES - A CASE STUDY OF MUMIAS TOWN.

BY

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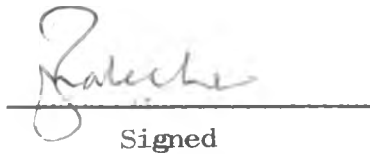
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DECLARATION

I. ISSA ATHUMAN KIPERA hereby declare that this thesis is my original work and has not been presented for a degree in any other University.

  
Signed

This thesis has been submitted for examination with my approval as University Supervisor.

  
Signed

ZACHARIAH MALECHE

DEDICATION

This Thesis is dedicated to my late mother Mwanasiti Nlufu who left me at a very tender age and I had to paddle my own canoe to discover the world. To my father Athuman Kipera and step mother Bihija who gave me maximum care and taught me by their examples how to overcome challenges in life. To my loving wife Mialii and daughters Siti Nlufu and Zuhura for their continued love, inspiration and understanding.

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Although the success of this study depended on many people I alone remain responsible for any errors or misconceptions contained in this work.

Kipera I. A.

June, 1989

ABSTRACT

This study examines the future housing needs in the small urban centre of Mumias in Western Province of Kenya. Mumias is a town with a long history that dates as far back as the early 1800, but whose present rapid rate of urbanization started only 1972 as a result of the establishment of a Sugar Industry.

In assessing the future housing needs, a number of models that can be applied for this purpose were examined. Two models, out of those examined, that consider housing needs variables and factors as evident in the study area were chosen. These models guided the whole process of housing assessment in the study area.

The major findings of the study show that a major proportion of the future needs will emanate from the existing inadequencies and rapid increase in population due to the expansion of commercial and industrial enterprises. It also found out that lack of commitment of the government and local authority to housing construction; lack of resources and inappropriate housing policies may hinder the realization of the future housing needs. The study has recommended the need for an intergrated environmental approach in planning for the housing needs. This planning approach, requires the involvement of all agencies and institutions concerned with housing development, with the government and local authority taking the lead in providing the required infrastructure necessary for an environmentally sound housing development.

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## CHAPTER ONE

### 1.0.0 INTRODUCTION

#### 1.1.0 STATEMENT OF THE PROBLEM

The Urbanization process has been very rapid in Kenya. The urban centres with a population of more than 2,000 people have increased from 17 in 1948 to an estimated figure of about 172 centres in 1988.

TABLE 1.1 - TRENDS OF URBANIZATION IN KENYA 1948-1988

| YEAR | NO. OF URBAN CENTRES | POPULATION IN URBAN CENTRES | % OF TOTAL POPULATION |
|------|----------------------|-----------------------------|-----------------------|
| 1948 | 17                   | 245545                      | 5.2                   |
| 1962 | 34*                  | 670934                      | 7.8                   |
| 1969 | 34*                  | 1079908                     | 9.9                   |
| 1979 | 91                   | 2135200                     | 15.0                  |
| 1988 | 172                  | 3958500                     | 17.6                  |

Source: Obudho R.A. 1981 and Development Plan 1989-93

\* The number of urban centres between 1962 and 1969 did not increase, they remained 34 although the urban population increased significantly.

In a period of 40 years the number of urban centres had increased 10 fold and the population of urban inhabitants by over 3.7 million people.

The rapid urbanization process in Kenya is not only limited to the increase in the number of urban centres but is also reflected in the rate at which the towns themselves are growing. Using population as an indicator of growth of a town, it is found that the town is Mumias (The Study area) has rapidly expanded from a small rural centre of 696 inhabitants in 1969 to an urban centre of 8305 inhabitants in 1979. Presently, the population is estimated to be about 19,000 people.

As rapid urbanization continues, a number of problems that are associated with this phenomenon have emerged in Kenya. The most noticeable of these problems in the towns is that of housing. Between 1979-1983 the housing needs in urban centres were estimated to be 290,000 units of which about 150,000 were emanating from increase in population residing in the towns, with the rest being as a result of accumulated shortfalls and depreciation (GOK 1979). As housing requirements continue to grow due to rapid urbanization, the supply has always lagged behind.

In the 1979-1983 plan period, the supply of housing by both the public and private sectors was only about 6500 units annually, thus in the whole period 32500 units were supplied, which was only 11.2 percent of the total requirements of the period. Even between 1976-1982, the number of houses built were not adequate; only 44,000 conventional units were built which was only 10.5 percent of the total needs. Kenya, generally, therefore hardly provides more than 11 percent of its urban housing needs annually (OBUDHO: 1988).

The housing deficit problem in Kenya is most chronic in the major towns of Nairobi, Mombasa, Kisumu and Nakuru has become a common phenomenon in all urban centres (URBAN HOUSING SURVEY: 1983) especially because of the rural-urban imbalances and the government's development policies that tend to attract more people in the towns. Programmes such as the growth centre strategy, industrial decentralization and the Rural Trade and Production Centres have already shown their effect on housing in the town of Mumias. The establishment of Mumias Sugar industry in 1972 and the improvement of services such as road communication network. Electricity and water supplies has made the town to attract more people; who have created more pressure on the existing housing.

Given that the growth of Mumias is going to continue, there is need to assess the future housing needs of the town so that proliferation of slums and housing inadequacies can be controlled. This study argues that it is the lack of accurate information on the magnitude of the housing needs that have led to the housing problems in towns. The housing problem in many places have been either overstated and exaggerated or under-estimated (Swazuri 1986), with the economic and social consequences in either cases being detrimental to the urban dwellers. For example in 1971, due to over-estimation of housing needs in the town of Khwisero a housing scheme of 194 units was constructed. This scheme remained un-occupied for a period of over 7 years because the housing needs were lower than the supplied units. The consequence of this is that a huge sum of investment, over Ksh. 700,000.00 was 'wasted'. Since returns were not immediately realised as it was expected

(ODA: 1981) Over-estimation of housing needs as seen in this example can therefore lead to wasteful use of resources.

On the other hand the under-estimation of housing needs in Mumias has led to the development of a site and service scheme with fewer units than the needs of the town. The Mumias site and service scheme which was built in 1979 to provide adequate housing for the urban dwellers (NHC: 1980) comprised of only 171 units which could not satisfy the needs. Because of this, the urban dwellers have continued to live in a state of overcrowding and in slums and squatter settlements. In fact these type of living conditions has worsened since no other housing developments have come up to address the problems.

It is therefore not just enough to contend that there is housing shortage in a town from mere observation and hearsay, reliable and accurate estimates must be made available. Reliable housing estimates are important in the process of establishing, formulating and evaluating housing programmes. In assessing the housing needs of small urban centres, it is important that the peculiar characteristics of these towns are taken into consideration. It has been argued by the Central Housing Advisory Committee (1969) that: "local authorities need to have a clear, deeper and detailed understanding of the housing situation in these areas. The development of national housing information has had a major impact on policy formulation but we no longer have a single national housing problem: we have a large number of local housing problems of great variety. It is therefore essential that local

policies be based on a well informed understanding of the individual areas and the context in which they arise" (p. 448).

This study therefore seeks to address itself to the housing problems of the small urban centres with reference to Mumias town. In doing so, the study will identify the most appropriate methodology for assessing the housing, needs and address the problems policy issues that are pertinent to the planning for the future housing needs.

#### 1.2.0 OBJECTIVES OF THE STUDY

The study has three main objectives:

1. Establish the rate and pattern of growth of Mumias town and its relationship to housing requirements.
2. Evaluate the existing housing situation and assess the future needs.
3. To suggest a policy framework within which the future housing needs can be realised.

#### 1.3.0 ASSUMPTIONS

- (i) The growth of the town will continue at its present rate.
- (ii) The average household size will remain the same in all the period upon which future housing needs are being assessed.

#### 1.4.0 SCOPE OF THE STUDY

The study assesses the housing needs of Mumias town in the next twenty years, this is from 1988 to 2008. In doing so, the pattern and rate of growth of the town was established so as the future housing needs are calculated in relationship to the future housing requirements arising from the established growth patterns. In establishing the present and future growth rates and pattern of Mumias, a historical perspective of analysis was done.

The Historical growth of the town as from 1800 to 1988 was traced and in each instance where the town experienced rapid growth or decline in growth, the reasons and factors under play in those specific periods are discussed. The study also looked at the development and growth trends of the town in terms of its socio-economic characteristics. Data on population employment, incomes, industry and commerce, land values and land tenure system was collected and analysed so as the changing patterns of the socio-economic base could be established over the years. A synthesis of this information with that of the historical development trends was carried out so as to conclusively establish the urbanization trends in the town and its relationship to the future housing requirements.

The study has also carried out a comprehensive analysis of the existing housing stock in the study area. In so doing, a housing count survey was carried out and the various characteristics of the housing stock recorded. From this the study was able to



detail out the current housing situation in the town in terms of the numbers of the dwelling units, their conditions in terms of quality, availability of infrastructural services, house rents and the occupancy rates. This analysis has formed the base for establishing the existing shortfall in housing needs as they emanate from the inadequencies of the present housing stock.

In arriving at the future needs of the town, the study has used the development trends to establish the future potential of the study area in attracting more migrants and hence making forecasts of the future population growth. Based on the population projections; the rate at which houses will depreciate as revealed by these present conditions, and those which require replacement in the future were calculated.

Once the magnitude of the housing problem was established, the study endeavoured into the planning for the future needs. The existing housing supply system, Institutional framework and availability of housing-related services such as water, electricity and finance were critically evaluated: as to find out what type of problems the housing supply programmes may suffer from. From this, appropriate suggestions and recommendations have been made so as to streamline the problem and policy rigidities likely to hinder the realization of the future housing needs.

Spatially, the scope of the study covers only the urbanized areas of Mumias Urban Council which in essence actually forms what can be termed as the "real Mumias town". This is because

most of the other area under the Urban Council is still virtually rural in characteristics. It is therefore only those centres which are clustered around Mumias old town that is, Shibale, Mayoni, Ekeru and the old town itself that have urban characteristics and show high potentials of further growth and expansion in the future.

In order for the study to fully address itself to the study objectives and scope, it has been divided into six chapters. Chapter one is an introductory chapter which states the research problem, objectives, assumptions and the scope of study. It also reviews the literature related to the study.

Chapter two introduces the study area. In this, the location, Historical development, Urbanization trends and the socio-economic characteristics of Mumias are discussed.

The Existing housing situation in Mumias are analysed in chapter three. This chapter starts by giving a brief review of the Kenyan housing policy, and how this has affected housing development in Mumias. In the second section the issues discussed are those related to the existing housing stock in the town. It looks into issues such as housing quality, the materials used for housing construction; Age of building, depreciation and maintenance; occupancy rates; rents level; housing ownership; and the infrastructural services related to housing. The analysis in these two chapter forms the base for assessing the future housing needs.

Chapter four, assesses the future housing needs of the town. In this chapter housing needs arising from overcrowding, new household formations, deterioration of structures and the replacement of unfit dwellings are analysed.

Chapter five deals with the Planning for the future housing needs. It looks at various policies and recommendations that if adopted can lead to the realization of the future needs. In this chapter implementable policies and programmes have been suggested. Finally chapter six gives the summary and conclusions of the study.

#### 1.5.0 RESEARCH METHODOLOGY

The data for this study was collected from both field surveys and library sources. Library sources have provided most of the secondary data that was required for the study while the other secondary data was obtained from the relevant offices in the field. The library work was mainly aimed at establishing the conceptual framework of the study and providing the background information on the study area, especially that related to its historical development, urbanization and housing in general.

The major component of the information that was used for this study is however that from primary sources. Primary data was collected from field surveys that were done in the study area. Three methods of primary data collection were used viz:

administering of questionnaires, discussion interviews and inventory surveys. In order to establish the existing housing stock in the town, a house count was carried out. For each of the dwelling units in the study area, certain information such as age of building, condition of the structure number of rooms, number of households and people living in the house were recorded on a housing survey sheet. This information has been utilized to establish the extent of the present housing need in the town.

In order to obtain more information on the socio-economic characteristics and housing problems in the study area, 120 questionnaires were administered. For this purpose, the study area was divided into three zones. The low income residential zone, middle income residential zone and high income residential zone. House rent levels for each of the residential areas in the town were used as an indicator of household incomes levels and hence the zoning criteria. Since 50 percent of the towns inhabitants are in the low-income group 40 percent in the middle income and only 10 percent in the high income bracket, these proportions were used in choosing the sample size for each zone. In the high income zone 12 questionnaires were administered, 48 in the middle income and 60 in the low income residential zone.

In order to fill the information gaps that were left by the two methods of data collection, Discussion interview were conducted. These were carried out with some officials of the Kakamega county council, Mumias Urban Council, housing developers,

local politicians and many other individuals. These discussions did not only bring more light to the housing needs problems in the towns but also a further understanding of the present situation and probable solutions to the problems.

The data collected both from the field and from the library was later analysed, using the various analysis techniques. This was then presented in the form of tables, charts and maps.

#### 1.6.0 . LIMITATIONS OF THE STUDY

There are a number of limitations that have made it difficult for this study to comprehensively and fully address its study objectives. In order to adequately establish the rate and pattern of growth of the town, information on the number of employed workers, industries, commercial enterprises and other economic activities were to be obtained preferably over a period of about 20 years. This was however not possible because of lack of such records and hence the growth trends in the town have been based mainly on the 1979 available secondary data and the 1988 field surveys.

Secondly, to assess the housing needs for a town like Mumias, it was required that more than one type of questionnaires be administered but this was not the case due to time constraints. More useful information could be obtained for the study if there were questionnaires to be administered to the industrial and commercial entrepreneurs, private housing developers and other investors in the town. Because the time available was short,

questionnaires were only administered to heads of households.

Lastly, there were also some problems which were encountered during the field surveys. Some respondents provided "false" information because they were suspicious about the purpose of the study. This limitation of collecting wrong information from the field has infact been very serious especially in the case where field assistants were used to administer the questionnaires.

#### 1.7.0 LITERATURE REVIEW

Housing shortage is a problem which had become an enduring feature of the urbanization process and over the years has continued to raise increasing alarm particularly from urban administrators, policy makers and researchers. The rapid rate of urbanization in Africa generally and more specifically in Kenya is due to a number of factors. The most significant being the rural-urban drift and high natural increases in population (DAVIES, 1965: OBUDHO, 1975). These factors are in themselves however embodied within the rural urban imbalance and the governments development policies that tend to favour urban centres.

It has been noted that as urbanization continues to take place the problems of unemployment and housing are compounded. This is because urbanization concentrates people in the towns at a rate which is faster than the urban centres ability to provide for housing and employment. Strassman (1978) found out that the rate of squatter and slum proliferation, which is an

indicator of housing shortage, is exactly equivalent to the extent of rural urban migration in most developing countries.

Macoloo (1984); Syagga (1987); Mitullah (1988); Ondiege (1988) and many other researchers in housing have outlined the following reasons as being responsible for the urban housing problems.

These are:-

1. high population growth rates in town due to immigration and natural increase.
2. lag in development of infrastructure that supports housing development
3. high building standards and lack of appropriate building technology
4. Poverty in a majority of urban households
5. lack of accurate data on the magnitude of the problem.
6. Institutional bottlenecks.

On the high building standards and poverty, Turin (1967) Syagga (1988) and Macoloo (1984) have argued that the increasing gap between housing needs and housing programmes is mostly aggravated by the disproportion between the cost of the dwellings built by conventional methods and the incomes of urban dwellers. Turin notes that the so called "low cost dwelling" when expressed in terms of its cost ratio against the annual income of the prospective occupant in African countries the ratio amounts to 2.5 - 4 for skilled workers and 5-8 for non-skilled workers and there are some cases where the ratio is higher than 10.

He therefore concludes that:-

"Only a small proportion of the population can afford to pay for an urban dwelling of an acceptable standard because the cost of building is high, recurrent expenditure great and incomes too low" (p.209).

Jorgensen (1984) Mitullah (1988) and Ondiege (1988) when looking at the Institutional bottlenecks found out it is not only the poverty and high population growth rates of the urban dwellers that lead to housing shortages. They have argued that rigidities in housing finance and lack of initiatives and incentives for housing development have made investors in housing to be unable to supply the needed housing units. Jorgensen notes that it is as a result of this that uncontrolled settlements have rapidly been growing in the towns since it is the only solution for the urban dwellers to provide housing for themselves.

It has also been argued that the magnitude of the housing problem has not been accurately estimated in most urban centres in Kenya. Ibanda (1978) when carrying out a study on Kenya urban housing needs found out that most local authorities do not have records from where to estimate the housing needs let alone the housing needs themselves being known. The knowledge of the magnitude of housing needs forms a basic pre-requisite in tackling the housing problem. This is because in order to establish and formulate realistic housing policies and programmes the size of the problem must be known first. The United Nation (1973) publication on survey of housing needs notes that those countries "that have worked out housing policies and are building the largest



number of houses for the masses are precisely those which even if in a summary or provisional manner saw fit to assess their needs first" (p. 5).

Gray and Richardson (1985) have also pointed out that "A critical component in formulation of any housing policy be it a national or town specific housing policy is an understanding of exactly what is needed in terms of housing accomodation. The key terms here are exactly and needed: for the former in the sense of precision of measurement, for the later, in the sense of that which is necessary" (p. 195).

In Kenya the importance of assessing housing needs have also been expressed. Ibanda. S. (1978) argues that "the knowledge of the volume and structure of long-term housing needs, approximate as they may be, is a very useful main source of information for long-term housing policies especially when considering social welfare as regards to housing. Such information can therefore be used in making long-term strategies in the building industry and also for macro-economic considerations" Ibanda further argues that "it is the housing needs estimates that have a decisive role in working out the general principles of housing policy and in elaborating housing programmes ..." (p.2).

Several definations of what constitutes housing needs have been given. According to the Department of Economic and Social Affairs of the United Nations (1976) housing needs are defined in social terms. Housing needs are defined as the extent to

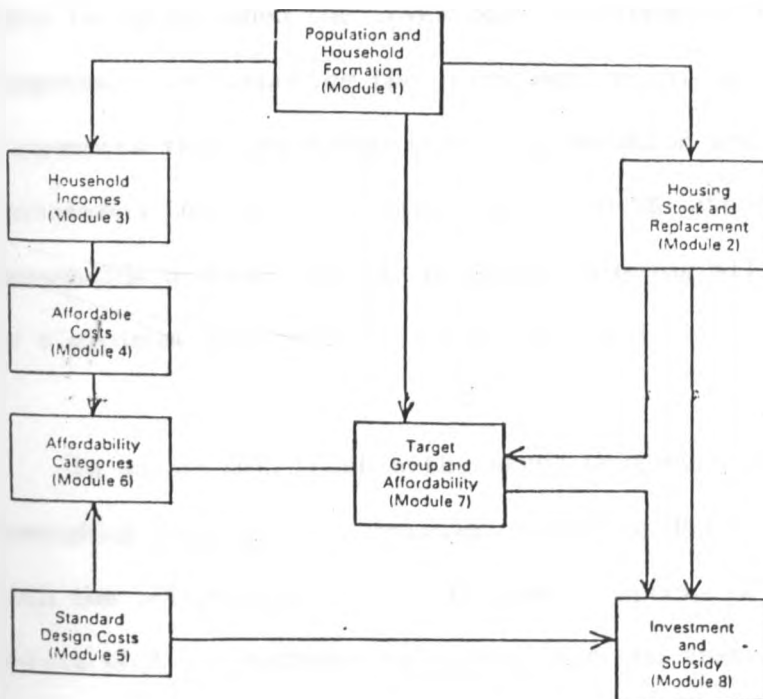
which housing conditions fall below the levels or norms considered necessary for health, privacy and the development or normal family living conditions. In another UN publication, the concept of housing need is defined as "the number of conventional dwellings or other suitable living quarters that need to be constructed or repaired in order to bring housing conditions, as of a particular point of time, up to nationally adopted standards, plus the number that need to be constructed, repaired and/or maintained to ensure that housing conditions remain at the standard level over a stated period of time" (p.6).

From the two definitions given above, it can be concluded that housing needs are measured in terms of the conventional dwellings required. It is expressed in terms of standards which are set arbitrarily and sometimes do not reflect the peoples aspirations. For the purpose of this study, housing needs will be defined as the number of dwelling units that are need to be constructed or improved at any given time in order to eradicate homelessness the occupation of shacks and overcrowding and for housing new households.

Housing need should not be confused with housing demand which simply means the needs and desires for a dwelling unit that are supported by the economic ability to satisfy it. Housing demand is thus a much narrower term than housing need because it only "expresses the need in terms of purchasing power ...." (Jorgensen 1984, p.27).

After acknowledging what is meant by housing need and the importance of assessing housing need, let's turn to the techniques that have been used in assessing it. A number of methodologies and models for assessing and estimating housing needs have been formulated. USAID (1984); Merret (1984); Kokus (1974) and Muntaz et al (1976) have come up with a step by step methodology for determining housing needs which they presented in flow-chart diagrams. On the other hand, the United Nations (1973; Habitat (1976); United Nations (1965); Mbwagwa (1978) and Swazuri (1986) have used mathematical models in estimating future housing needs.

The United States Agency for International Development (USAID) developed a procedural methodology for assessing housing needs which is presented by a flow chart as given below.



Source: Gray G. and Richardson E. 1985.

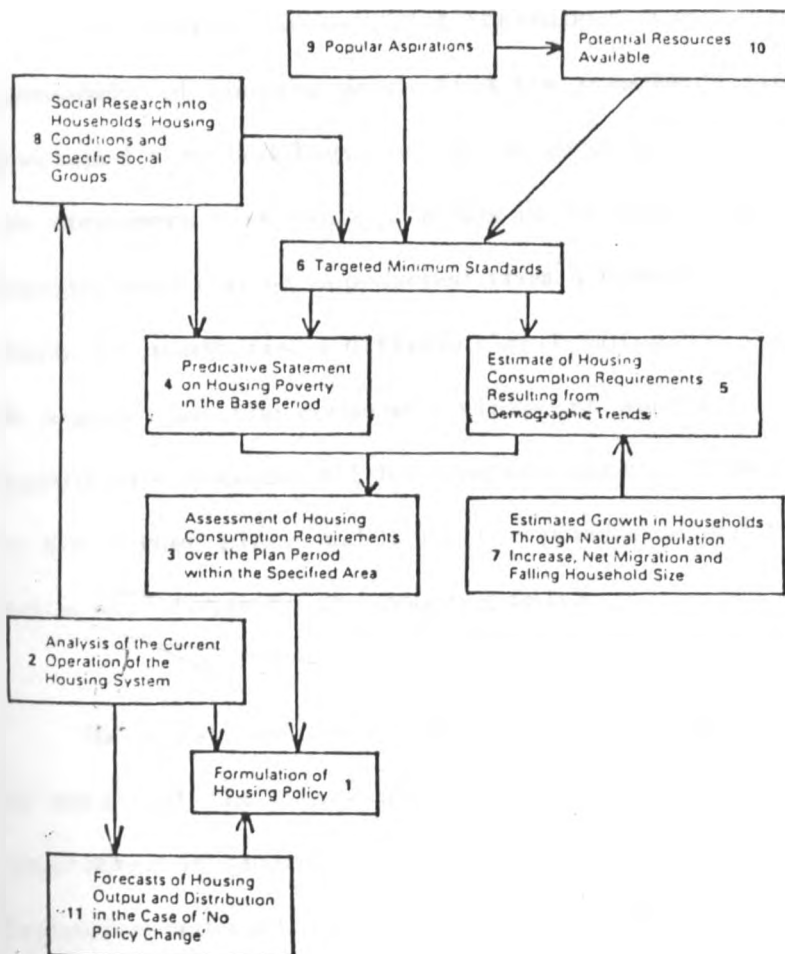
The USAIDS methodology revolves around two central and critical aspects: the projected housing need and the level of investment required to bring the entire housing stock to a minimum level of quality commensurate with projected requirements. The flow chart therefore indicates the main steps and factors that must be considered. These steps can be seen in two perspectives viz:- demand and supply. The methodology identifies the demand factors as population growth, household formation, household income and distribution and alternative mortgage lending terms. The supply factors on the other hand are the cost of alternative housing solutions, the conditions of the existing stock and the potential impact of increased demand on these costs.

In this methodology, USAID projects the physical needs in the form of units per income group and over a period of time and once this is established the investment requirements to meet this are computed. In computing the investment required, the main components that are taken into consideration are the portion of investment that will be recoverable through affordable payments by households and the subsidy required to bring all households up to a minimum housing level as established.

In an attempt to show the steps that must be followed when assessing housing needs however, USAID tended to link every step with the affordability and investment aspects of housing to an extent that the methodology looks like one assessing demand. If such steps are followed when assessing needs in urban centres in Kenya where a majority of the urban dwellers are poor, then most

of them will be condemned to homelessness.

Merret (1984) in his methodology came up with a step by step framework which starts from the felt needs' and views of the beneficiaries. In assessing the housing consumption requirements, Merret indicated that popular aspiration and potential resources available must be known, and an analysis of the current operation of the housing system done. It is from these steps that the others will follow as shown in the chart below.



Source: Merret S. 1984

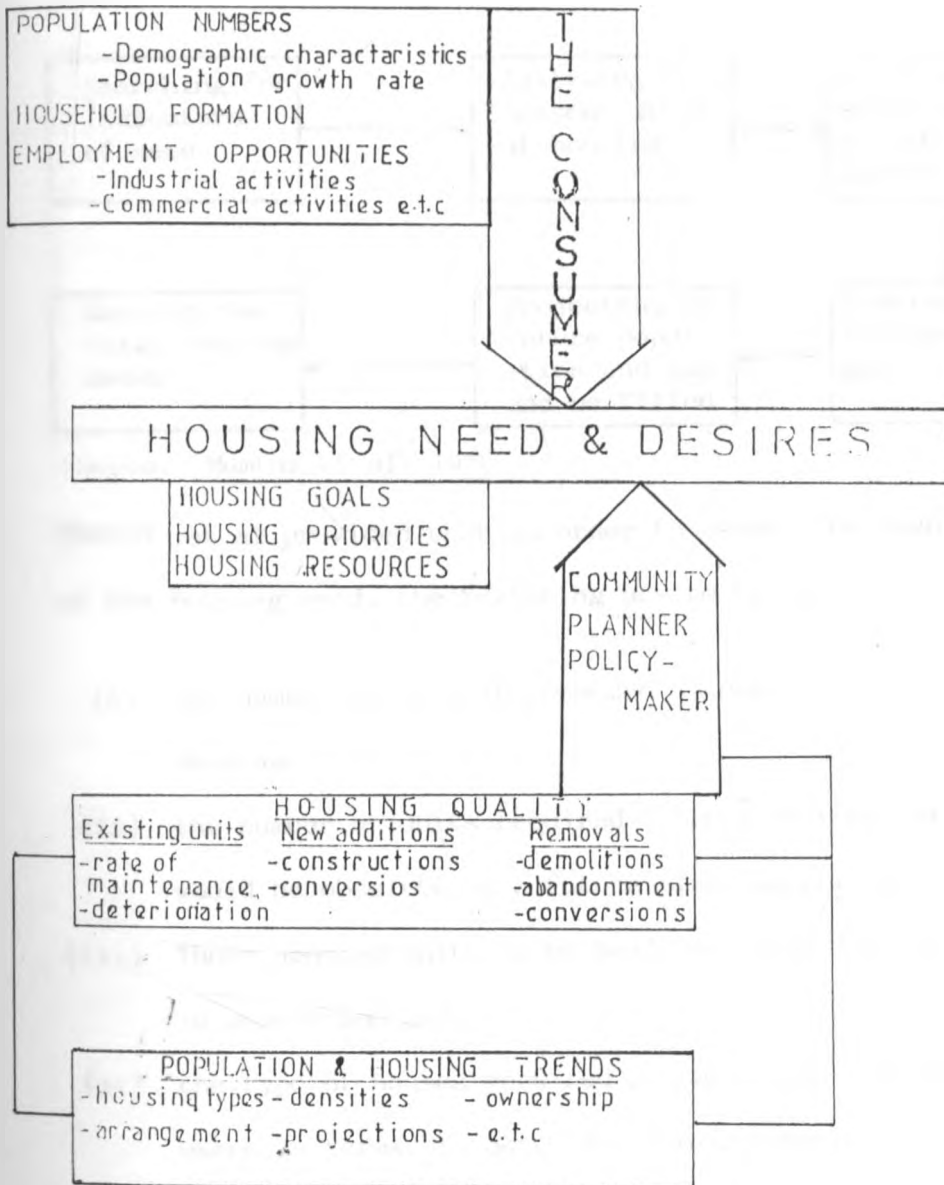
The methodology developed by Merret is more wholistic than that of USAID. He summarised his methodology as follows:

"Housing consumption requirements in their totality are constituted by the accomodation which it is necessary to provide for the population, on the basis of specified targeted minimum standards both to eliminate existing housing poverty and to provide for future growth in the number of households, such accomodation being appraised in quantitative terms as well as in terms of physical character, user control, environmental and relative locus" (p.327).

Like Merret, Kokus (1974) developed a methodology for the assessment of housing needs from the consumers view-point. Kokus developed a methodology for the assessment of housing needs from the consumers view-point. Kokus notes that "the subject of housing need can be approached from a number of viewpoints each of which neccessitates a different methodological approach" (p.3). He argues that the consumers viewpoint approach is the more appropriate because all housing consumer's exercise their choices in the market place and hence the purchased and rented housing units will total to the housing units.

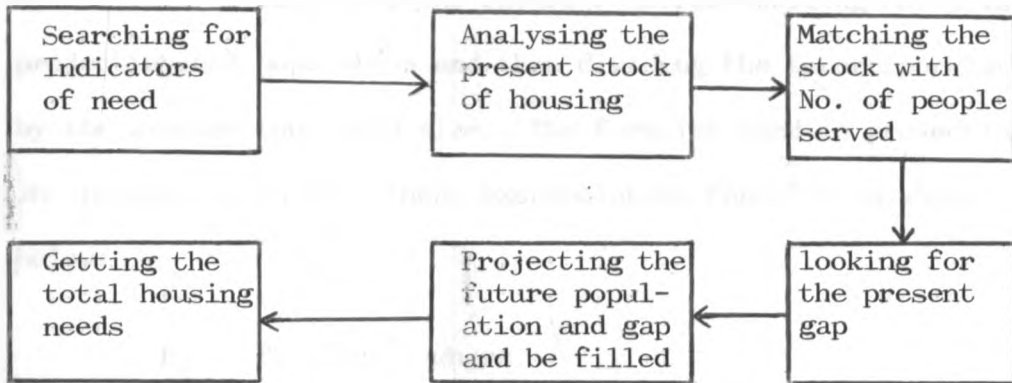
The first step in assessing housing needs according to Kokus is to establish the consumers. The variables that have to be considered in this case are population numbers, household formation and factors related to employment opportunities. Once this step is accomplished the second is the establishing of population and housing trends in relation to the housing quality both the existing, new additions and removals. These steps are

then finally synthesized to establish the housing needs and desires. It is upon this that the final step of formulating housing goals priorities and resources are done.



Source: Kokus J. 1974

While USAID, Merret and Kokus have endeavoured to come up with complicated methodologies for the assessment of housing needs, Muntaz et al (1976) developed a simple and straight forward approach. The process basically consists of the following steps:



Source: Muntaz et al; 1976

Muntaz et al provided that in order to assess the magnitude of the housing need, the following has to be determined:-

- (i) the number of dwellings needed to overcome the existing shortage.
- (ii) the number of units required to replace those which would be obsolete in a future planning period.
- (iii) Those housing units to be built to cater for increases in population and,
- (iv) the type of houses required by the various groups of users in terms of cost, size and standards.

Apart from the procedural methodologies developed for assessing housing needs, as reviewed above, there are a number of mathematical models for doing the same. The most common of them all is the deficit method that was illustrated by the



United Nations (1965) and applied by Mbwagwa (1978) to estimate housing needs in Eldoret. The model simply entails knowing the existing housing stock and the total number of housing units needed in the future period. The shortfall between the future units and the existing housing stock is taken as the housing need. The method used to calculate the future required dwelling units is by projecting the population and then dividing the future population by the average household size. The formula used in projecting the population is the linear extrapolation formula as shown below:

$$P_2 = P_1 (1+r)^n \quad \text{where}$$

$P_2$  = projected population

$P_1$  = Base year population

$r$  = rate of growth of population

$n$  = number of years.

The model therefore is mathematically given as:

$$H_N = \frac{P_2}{S} - H_E$$

where /  $H_N$  = Housing need

$P_2$  = projected population

$S$  = household size

$H_E$  = Existing housing stock.

Habitat (1976) advanced this model further. In developing its model Habitat argued that as the number of existing dwellings is related to the number of existing households, it

could be assumed that this relationship is constant within the same geographical region. Consequently then it is:

$$\frac{DX}{Hx} = \frac{Dy}{Hy}$$

where:  $Dx$  = Dwelling stock known  
 $Dy$  = Dwelling stock unknown  
 $Hx$  = Households in  $Dx$   
 $Hy$  = Households in  $Dy$

$$\text{As } Hx = \frac{Px}{hx} \quad \text{and } Hy = \frac{Py}{hy}$$

where:  $Px$  = population housed in  $Dx$   
 $Py$  = population housed in  $Dy$   
 $hy$  = household size of  $Pxy$   
 $hx$  = household size of  $Px$

From this then the first formular can be rewritten as:

$$Dy = Dx \frac{Py}{P} \frac{hx}{hy}$$

This formular gives the estimate of the unknown dwelling stock in the region.

Based on the assumption that the ratio of dwellings to households remain constant within the same geographical region, the Habitat (1978) express its final mathematical model as:

$$Dn = D_1 \frac{Pn \cdot hi}{P_1 \cdot hn}$$

where:  $D_1$  = Dwelling stock at base year  
 $D_n$  = Dwelling stock at year  $n$  of the period.  
 $P_1$  = Population at base year  
 $P_n$  = Population at year  $n$   
 $h_1$  = Household size at base year  
 $h_n$  = household size at year  $n$ .

These two models, are simple mathematical models that use the 'deficit method' of estimating housing needs. Generally, the major concern of these models are the existing housing stock and the future population that is translated to housing needs. Due to their simplicity, these mathematical models did not take into account and consideration some very pertinent issues such as housing obsolescence, overcrowding and 'unfit' dwelling as regards the assessment of housing needs.

The United Nations (1973) model seems to be the most detailed mathematical model for estimating housing needs. The model is expressed in a functional form as:

$$E(t) + (E_1 + E_2 + E_3 + E_4 + E_7(t)) + E_5 + E_8(t)$$

where:

$E(t)$  = future housing needs

$K$  = coefficient to allow for vacant dwellings.

$E_1$  = the number of living quarters required for households without shelter (homeless).

$E_2$  = The number of acceptable living quarters required for households occupying living quarters of an-acceptable type.

E3 = The number of living quarters required to provide separate accomodation for households involuntarily doubled up with other households in living quarters of an acceptable type.

E4 = The number of living quarters required to reduce level of density (persons per room) in acceptable living quarters to a desired level.

E5 = The No. of living quarters required to replace living quarters which are of an acceptable type but sub-standard or dilapidated and beyond repair at the beginning of the period covered by the estimates.

E8(t) = The No. of living quarters that will be required to house the projected increase in the no. of households during period (t) covered by the estimate.

E8(t) = The number of living quarters that will be required to replace living quarters of an acceptable type which will.

The model even goes further to express the mathematical functions to be applied in each of the components in the initial basic housing estimating equation.

In estimating component  $E_1$ , the households without shelter (homeless) the expression used is given by:

$$E_1 = H_1$$

where  $H_1$  = no. of households without shelter.

The second component E2 which gives the households occupying quarters of an unacceptable type is expressed as:

$$E2 = H2 + H3$$

where: H2 = households occupying quarters of unacceptable type

H3 = Potential households in unacceptable quarters.

where the estimation of H2 and H3 is not easily to obtain from physical counts, the component E2 can be calculated by:

$$E2 = \frac{Pn}{S}$$

where:

Pn = population occupying living quarters of an unacceptable type

S = Average size of household in the population

E3 as a component the housing needs is expressed as:

$$E3 = H4 + H5$$

where: H4 = no. of doubled up households occupying living quarters of an acceptable type

H5 = Number of potential households occupying living quarters of an acceptable type.

This component therefore incorporates the housing needs that arises from shortage of housing that forces households to put-up with others involuntarily and therefore wish to have their own housing if it is available. The potential households on the other hand are those married couple still living with their parents because of housing shortages.

The equation below shows the number of additional housing units required to reduce levels of density in accpetable housing to desired level which is given by E4 in the general equation.

$$E4 = \frac{Pa - R \times d}{S}$$

where:

Pa = no. of persons occupying housing units of acceptable type.

R = no. of rooms in housing units of an acceptable type.

d = desired density of occupation

S = Average households size.

E5 which is a component representing the number of acceptable living quarters in need of repairs and maintenance or replacement is given by:

$$E5 = U1 + U2$$

where: U1 = no. of housing units which are accpetable but dialpidated beyond repair and needs replacement.

U2 = no.of units are of an acceptable type but need structural reconditioning or for which certain essential facilities need to be provided.

In estimating component E7 (t) the equation used is:

$$E7(t) = \frac{Pt}{St} - H$$

where:

$P_t$  = Estimated population in households as of the end period (t).

$S_t$  = Average size of household at period (t)

$H$  = Number of households as of the beginning of the period covered by the estimate.

This estimate basically looks at the housing units since it is the housing units that fulfill the housing requirements of the vast majority of newly formed households. The estimate is based on the expected increase in the number of household during a specified period of time.

Lastly, component  $E_8(t)$  is expressed as follows:

$E_8(t) = rU + U_3 + U_4 + U_5 + U_6$  t where:

$r$ = Percentage rate of replacement of housing units due to depreciation

$U$ = total number of acceptable housing units at mid year.

$U_3$ = no. of housing units that will be demolished because of urban redevelopment.

$U_4$ = no. of housing units lost due to disasters during the period.

$U_5$ = no. of acceptable units that will fall out of use or be converted from non-residential purposes during period (t)

$U_6$ = no. of acceptable housing units that will be lost because of small units converted into fewer number of large units during the period.

The UN model (1973) as presented above is the most comprehensive of all models for estimating housing needs. This model has been applied by Swazuri (1986) in estimating the urban housing needs for the town of Malindi. He found the model best fitting in estimating housing needs and he noted that the model is "an open manual that can be carried and altered in order to be applicable anywhere" (p.50). The model looks at the totality of housing needs irrespective of house type, nature of provision (public or private) or the categorization into low, medium or high cost housing. It is a real housing need estimating model because it completely excludes the concept of 'ability to pay' for the required housing units desired from the estimates.

This study will adopt Kokus' procedural approach and the United Nations mathematical model in assessing the housing needs of Mumias. The choice of these models is due to the following:-

1. their comprehensiveness - these models address the issue of housing needs in a more wholistic approach than the other models.
2. Affordability - the models do not favour the affordability criteria for assessing housing needs which tends to condemn a majority of the households to homelessness.
3. Accuracy - the UN model gives the most accurate housing needs estimated (Swazuri 1986, p. 177).
4. Applicability - the conditions in Mumias closely fit and relate to what is required in the models.



Mumias is a small urban centre whose growth has largely depended on the Mumias Sugar industry. The existence of the Sugar industry and other related industrial activities because of the employment opportunities they offer, will be a source of a significant proportion of the housing needs. The two models, the Kokus and UN models, are more fitting in assessing the housing needs because they both consider the factor of employment opportunities, as it exist in Mumias as an important variable in housing needs assessment.

The second condition that exist in Mumias and that the models address is the condition of the dwelling units. In Mumias, there are different categories of houses in terms of quality. The housing structures in the site and service, the civil servants' area and the Mumias Sugar Nucleaus estate are different from the slum and squatter settlements in Mijini, Shibale and Warabuni. While Kokus model fits in such situation by indicating that the housing quality must be established, the UN model provides that in assessing housing needs, the housing condition in the town must be evaluated to find out the magnitude of "acceptable and unacceptable" so that those of very low quality can be replaced.

The other conditions in Mumias that relate to the applicability of the two chosen models are overcrowding high natural increase in population and maintenance and depreciation of the existing housing stock. Due to the existing housing shortage, housing occupation rates are higher in the town that the set national standards of 2.5 persons per room (DURP: 1988). The models

recognise this factor as a source of future housing needs.

Housing depreciation and high growth of population from Natural causes are conditions which not are not only in Mumias but in all urban centres. In order to accurately estimate how many dwellings will be needed, knowledge of those dwellings which will be dilapidated beyond repair during the period of assessment, is important as outlined in the models.

The choice of these models thus is not only based on the reasons as outlined above (p. 30) but also because they fit and fully address the existing conditions in the town of Mumias.

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MUMIAS TOWN - NATIONAL CONTEXT

Map  
No 1

## CHAPTER TWO

### 2.0.0 BACKGROUND OF THE STUDY AREA

### 2.1.0 LOCATION AND GENERAL FEATURES

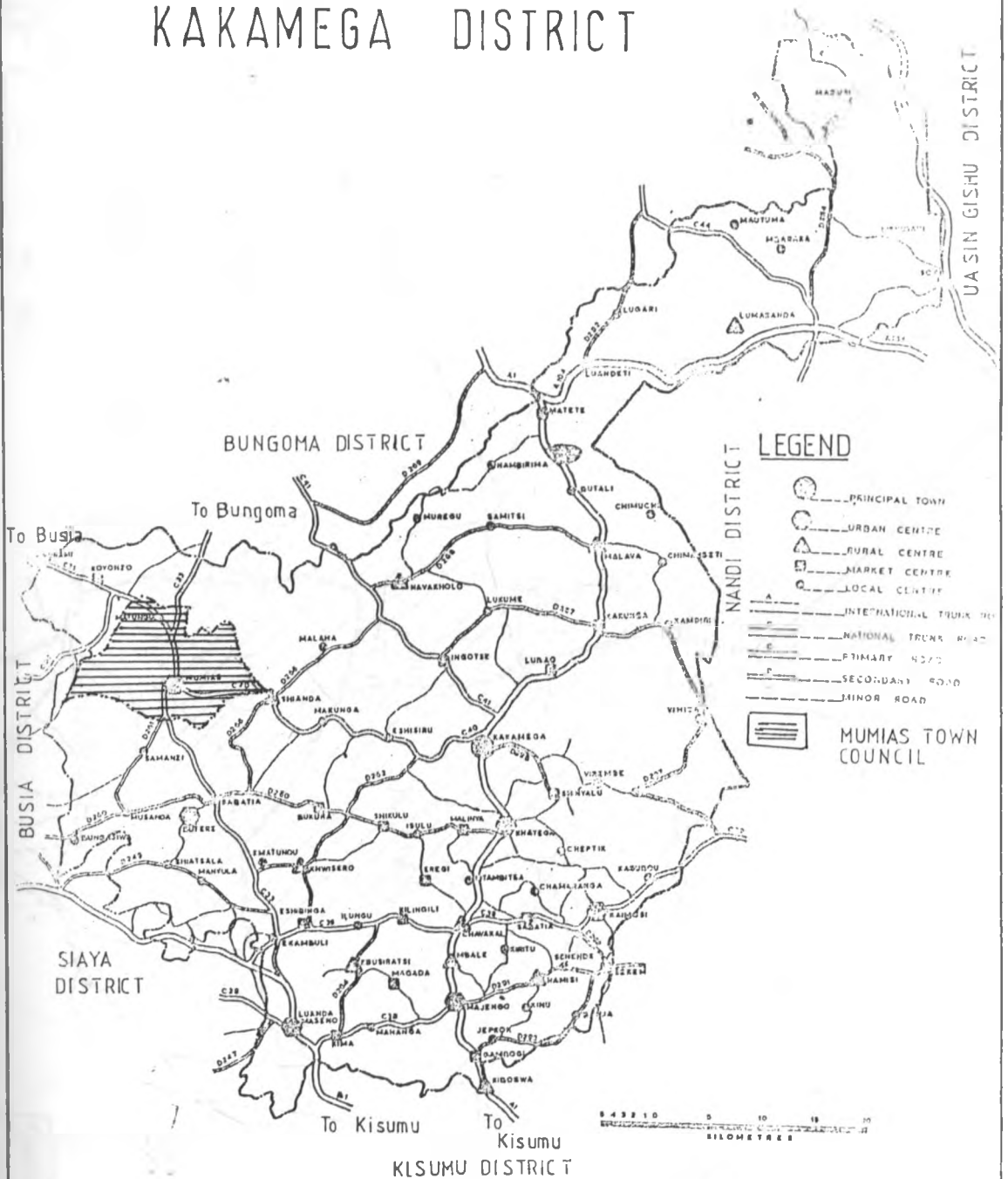
#### 2.1.1 LOCATION

Mumias is a small urban centre in Kakamega District in western province of Kenya. It is within Mumias division which lies in the western reaches of Kakamega District and adjacent to Busia and Bungoma Districts (Map 1). The town lies between longitude 34 and 35 East and latitude Zero (equator) and one degree North.

The town is well connected by road with other major towns within the province. It is strategically placed at the intersection of roads to Kakamega, Busia and Bungoma, all of which are district headquarters. Kakamega, which is both a provincial and district headquarters lies 37 Km to the East. Kisumu, the provincial headquarters of Nyanza province is 80 Km to the South East while Bungoma is only 29 Km to the north, Busia lies about 56 Km to the West (Map 2).

The whole of Mumias town council covers an area of approximately  $113.5 \text{ Km}^2$  while the "urbanized area which for the purposes of this study is taken as the town of Mumias covers an estimated area of  $24 \text{ Km}^2$  (Map 3).

## KAKAMEGA DISTRICT

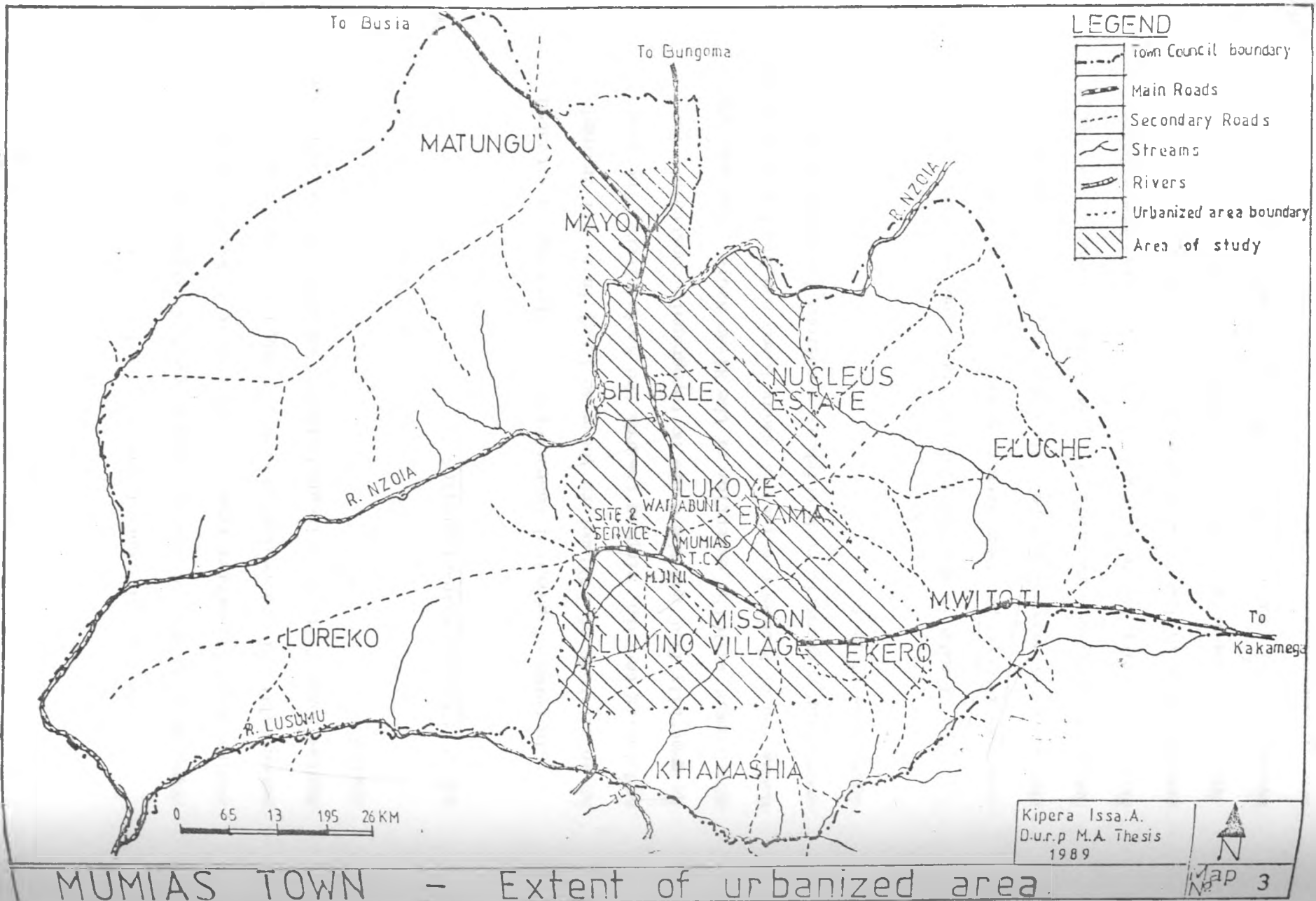


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## MUMIAS TOWN – Regional Context

Map  
Nº 2





In the regional context the town is located within the Sugar growing belt of western Kenya; which stretches over a radius of 21 kilometres from the town centre. Because of the potentiality of the region in terms of Sugar cane growing, the Mumias Sugar factory is located about 3 Km north of the main town centre.

### 2.1.2 PHYSICAL CHARACTERISTICS

In terms of physical characteristics, the town is situated at an altitude of 1300 meters above sea level in a well drained undulating terrain, sloping towards the Nzoia river. The land is generally flat and there are no topographic constraints for development with the exception of the River Nzoia. The geological formation of Mumias consists of sandy loams and black cotton soils overlaying a granitic rock which is occasionally interrupted by intrusions of grit.

The climate is generally of equatorial upland type. Rainfall averages 1800 mm per year with a maximum of 267 mm occurring in the months of March and June. The short rains occur around October and records rainfall of about 120mm. Temperatures range from 31 C during the hottest months to 14 C during the coldest months. Most of the natural vegetative cover is non-existent since it has been removed for the urban development. There are however, still remain patches of *Markhamia* species that are found around homesteads.

### 2.1.3 LAND TENURE AND LAND VALUES

In Mumias town, land ownership falls under three categories viz: government land; leasehold; and freehold. In 1971 the government acquired 208 hectares in the town. Presently, this land is occupied by the Mjini and Warabuni squatters, the commercial centre, site and service scheme, some institutions and government offices. About 80 hectares of this land however still remain undeveloped.

Leasehold land covers a total of 4580 hectares. The Mumias Sugar Company owns 4,500 ha while the Mill Hill Mission has 80 ha. Out of the 4,500 hectares leased by the Sugar Company, 3,400 hectares are under sugar-cane plantation and the balance, 1,100 hectares is occupied by the industrial plant, residential units, recreational facilities and transportation. In the Mill Hill Mission the land uses are the educational cum-religious institutions which occupy 60 hectares. This is  $\frac{3}{4}$  of the total area, while the remainder is occupied by St. Peters hospital.

The rest of the land in Mumias is freehold. Land under the individual private ownership comprises of 19220 hectares. The individuals who own it have built their residential houses and also put it under cultivation, mainly for Sugar cane. The freehold land which is under farming is 14500 hectares while about 1900 hectares are under housing with the rest being undeveloped (See Map 4).

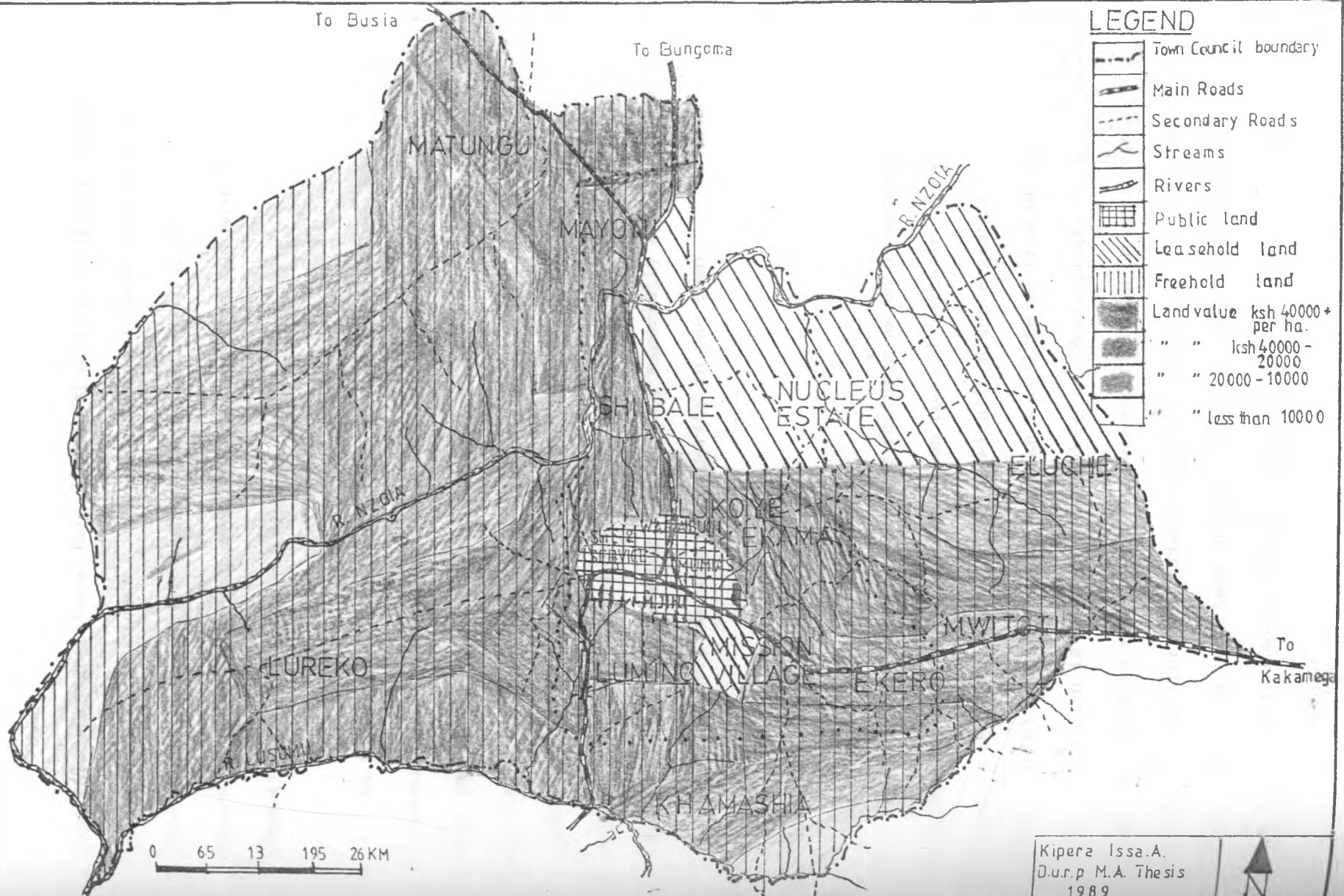
Land values in the town are relatively high compared to the other surrounding areas. According to a DURP survey in 1988,

To Busia

To Bungoma

# LEGEND

-  Town Council boundary
-  Main Roads
-  Secondary Roads
-  Streams
-  Rivers
-  Public land
-  Leasehold land
-  Freehold land
-  Land value ksh 40000+ per ha.
-  " " ksh 40000 - 20000
-  " " 20000 - 10000
-  " " less than 10000



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Map No 4

MUMIAS TOWN

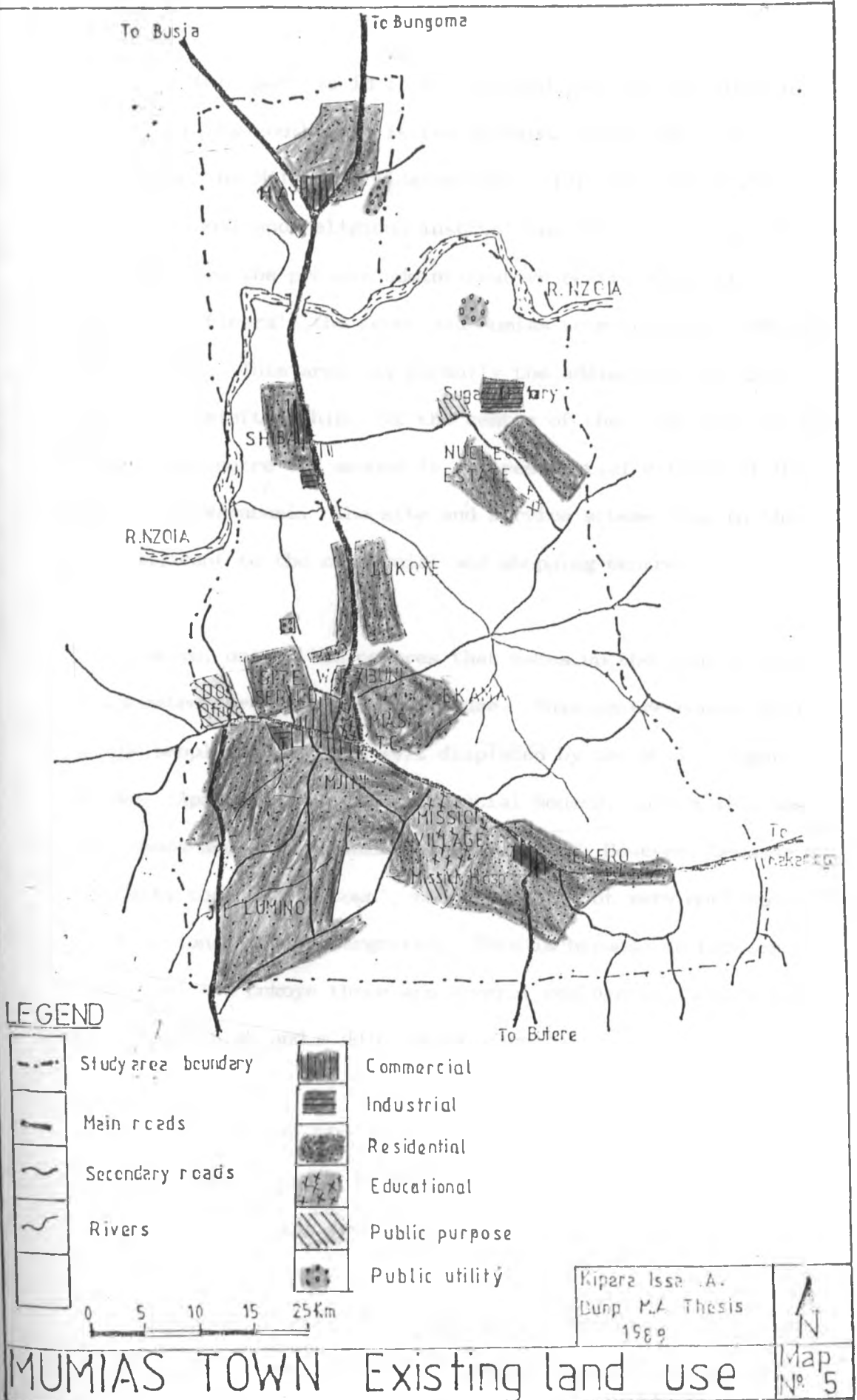
Land values and Tenure systems

land values range between Ksh. 10,000.00 to Ksh, 50,000 per acre. The land which is closer to the main national trunk road passing through the town has the highest value, and the values generally decrease as you move further away from the main road (Map 4).

As it relates to housing, land ownership and values may restrain the development of housing as assessed by the study. With the exception of the government land which may be readily available for housing development, the acquisition of freehold land might be difficult and expensive. The cost of acquiring land is always reflected in the cost of the houses constructed and this may hinder housing development, especially for the low-income earners who are the majority in the town.

#### 2.1.4 URBAN STRUCTURE

Mumias town has some peculiar features as an urban centre. The urbanized areas within the urban council which are normally taken as the "Mumias town" are physically disentergrated (DURP: 1988) and they stand out like satellite centres of the main town which is usually referred to as 'Mumia proper'. The town is therefore not a continuous mosaic of builp-up environment as is the case for most urban centres in Kenya. As a disentergrated town, Mumias is comprised of the 'Old town' this is the 'proper Mumias', Ekero, Lukoye, Shibale, Mayoni and the nucleaus estate.



The 'Old town' is in itself divided into several district zones. In the South East is the Mission village which was founded by the Mill Hill missionaries. This zone has a complex of educational and religious institutions and a hospital. To the west lies the present administrative centre where the District Officers', the count and Mumias town Councils' Offices are located. This area was formally the administrative Boma of the Wanga Chieftainship. At the centre of the 'old town' is the commercial centre and around it are residential estates of Mjini, Lumino and Warabuni. The site and service scheme lies to the West adjacent to the commercial and shopping centre.

Lukoye, one of the centres that makes up the town is about a kilometre North of the town centre. This centre houses most of the people who were in 1972 displaced by the Mumias Sugar Estate. Apart from having residential houses, Lukoye also has some shops and other commercial activities. However, because of its proximity to the 'Old town', the centre is not very much spatially and functionally disintegrated. This is because in between the 'old town' and Lukoye there are several residential houses housing some of the high and middle income earners.

To the South of the 'old town' lies Ekero. This centre is located at the junction to Butere and it has its own commercial residential and light industrial activities.

Shibale is a centre that lies at the entrance to the Sugar factory. This commercial cum residential centre has emerged due to the commercial and residential demands of the factory

workers. It has also some light industrial activities which are directly related to the Sugar industry such as tractor yards. Further north of Shibale is Mayoni, it is mainly a residential suburb with most of the houses housing the Mumias Sugar Company workers.

Lastly, is the Nucleus estate. This comprises of the industrial plant, educational institutions, recreational facilities and the housing estates; for the workers of the company. The nucleus estates operates as a self-contained settlement with most of its own services and even infrastructural facilities such as a sewer system and water supply.

Although the present trends of development in the town indicate that the town is moving towards attaining a physical and functional intergration, (DURP: 1988) the existing urban structure poses problems in housing development especially in terms of providing infrastructural facilities such as sewerage reticulation system, water, and electricity. The disjointed nature of the town will make the per capita cost of providing such infrastructural facilities high because of the distances to be covered between residential areas.

#### 2.2.0 HISTORICAL DEVELOPMENT AND URBANIZATION TRENDS

Historically, Mumias is an old town, with its history dating as far back as the 17th century. Before the Europeans penetration to the Wanga Kingdom, the present day Mumias was

known as Kwa-Shiundu. Kwa Shiundu, which was the traditional administrative boma of the Wanga Chieftainship was named after Nabongo (ruler) Shiundu, the father of Nabongo Mumia, from whom the name Mumias came.

From 1800 up to 1870, Kwa-Shiundu, the, present Mumias was a very important centre. In 1870 however, the reigning Nabongo Mumia shifted his administrative seat from Kwa-Shiundu to Lureko. This was prompted by the unhealthy conditions that were prevailing in Kwa-shiundu. In 1883, the Europeans visited the Wanga empire and Nabongo Mumias gave them the deserted bomas at Kwa-shiundu to be their camp. It is these European who stayed and, or passed through Kwa-shiundu who preferred to call it Mumias; a name which has been retained up to today.

The present Mumias town did start not only as an administrative centre but also as a trading centre. When the Arabs, who were trade merchants involved in slave and ivory trade arrived in Mumias in 1850 they not only made it their trading base but also a caravaan station.

Although trade had been a very important activity in Mumias in the 1850's, the town did not grow as expected, especially in terms of actual physical expansion. This is mainly because of the type of trade that was being carried out, this is, slavery and ivory, prevented or worked against the development of any kind. Up to 1883 therefore, Mumias remained as a small settlement centre, with its major function being a traditional administrative



centre, although it was also a trading and communication centre because of its strategic location in the transportation network of that time.

The establishment of colonial rule in East Africa in 1880's by the British revitalised the growth of Mumias. In 1883, the IBEA company, which was colonizing East Africa on behalf of the British government chose Mumias to be the administrative headquarters for the Eastern province of Uganda. During this time, Mumias experienced more developments in terms of physical facilities. The company constructed four houses, a store room, an office and dispensary which were to serve the administrative station. Due to this, the population of the town increased.

In 1899, the glory of Mumias however started to dwindle. In this year, the administrative offices of the eastern province of Uganda were removed from Mumias to Port Florence (Kisumu) and Mumias was just an administrative centre of North Nyanza. Mumias was saved from completely dying out by the coming of the Indian Banians who were building the Kenya-Uganda railway and by the colonial governments indirect rule policy that made Nabongo a paramount chief. With the coming of the indians who had build the railway line up to Kisumu, the commercial function of the town got strengthened. These Indians opened retail shops, which today form part of the commercial centre of the town.

Because of the development in Commerce and educational and religious institutions between 1901 and 1905, Mumias was in

1909 gazetted as a township; The boundaries of the gazetted township covered approximately 266 acres of alienated land. It was in this period also that the native open market, a major activity even today started to flourish; At this time the open market was located to the south of the Indian Bazaar. As a result of the rapid growth in commerce, more physical structure were put up as from 1910. These were a Post Office (1910); Stone jail (1912) and Dispensary (1913).

It was also in the period between 1910-1919 that the first structural Development Plan for Mumias township was drawn (1915). The plan was drawn according to the colonial policy of segregated development, and as a result the town was divided into five parts; the Administrative Boma, The market place, the mission, The African quarters and the Asian trading area. These were separated both physically and functionally, a structure that exists up to today.

Mumias, after having survived the 1899 shift of the provincial headquarters to Kisumu, in 1920 it faced another blow. In this period, the colonial government removed the District headquarters of the North Nyanza District from Mumias to Kakamega. This action which was prompted by the unbearable health conditions of the town, which came as a result of an outbreak of small pox, pneumonia and other diseases negatively affected the growth of Mumias. Due to this, most of the administrative offices and commercial activities were closed down. From this period up to the 1960's mumias only survived as

an important educational and religious centre. This is mainly due to the well established Mill Hill mission with its schools, churches and a hospital. In terms of political importance, the town was only a divisional headquarters and even up to today. In terms of commercial function it remained only as a small gazetted trading centre. Up to the 60's, Mumias did not record much development and in fact the actual build up area was greatly reduced and parts of the town was turned into small shambas.

In 1967, a pilot sugar cultivation project was started in Mumias by the Bookers Company. The experiment proved a success and in 1972, the Mumias Sugar Factory was built and by 1973 it was in operation. The establishment of the giant sugar factory. Three kilometres to the north of Mumias town centre marked the beginning of another era of steady development and growth of the town and its surrounding areas. Mumias and its neighbouring areas, which were seriously underdeveloped with virtually no wage paid employment has since then greatly benefited in terms of economic growth. As a result of the Sugar factory, the housing needs of the town also increased. To meet the housing demand, new housing estates such the site and service scheme, Outgrowers Company estate and other private housing have been put up since 1973.

Since 1973, the town also experienced more development in the commercial centre. These development include a Bank, a new post office, a car park and several new commercial premises. Because of these development, the town was upgraded in 1987 from a trading centre to an urban council and in September 1988, the

urban council presented a proposal that the town be given a town council status.

As the town underwent all these historical developments since the 17th century, the urbanization trends have also tended to follow the same pattern. It has all through been marked by ups and downs depending on the factors which were underplay at any one given period in history. After the establishment of the Mumias Sugar Factory, however, the trends of development in the town have taken a relatively steady growth pattern. Population growth both from natural factors and immigration has been steady and so is the physical developments; if these trends continue, then Mumias will be able to attain some of its past glories it had within the region.

### 2.3.0 SOCIO-ECONOMIC CHARACTERISTICS

The socio-economic characteristics of the town tend to have a direct bearing both to the towns' present and future housing requirements. This section tries to focus on the major social and economic aspects that have had either direct or indirect influence or effects on housing.

#### 2.3.1 POPULATION

The population of the town have ever since 1969 when the first comprehensive census was carried out, recorded a substantial steady growth. The table below gives the population of the town in a number of years. In the ten year period between

TABLE 2:1 POPULATION OF MUMIAS 1969-1988

| Year | Population size | % growth rate<br>per annum | Source                 |
|------|-----------------|----------------------------|------------------------|
| 1969 | 696             |                            | 1969 census            |
| 1979 | 8305            | 28                         | 1979 census            |
| 1980 | 9700            | 14                         | Water design<br>manual |
| 1988 | 18880           | 8.6                        | Dist. Dev. Plan        |

1969-1979 the population increased at a rate of 28 percent per annum because of two main factors. First, is that the 1969 population census was based on only the 'old town' as an enumeration unit while that of 1979 incorporated a much wider boundary. Secondly the establishment of the sugar factory in the early 1970's brought about a population influx to the town.

In the period between 1970-1980 the towns population growth rates were much higher because of the employment and economic opportunities that the sugar industry provided. The Sugar industry, alone employed over 8,000 workers. It is in this period also that a number of Commercial and small-scale industrial concerns were established to tap the economic potentials created by the Sugar industry. These activities such as the tractor yards, Bank and retail business attracted more people. Because of this the population growth rate in Mumias between 1970-1980 was very high, over 14 percent per annum, which is almost double the national average population growth rate in urban centres.

After 1980, however, Mumias experienced a decline in its population growth. Between 1980-1988, the growth rate per annum declined to 8.6 percent. Among the reasons that can explain this decline is that the rush to Mumias for getting jobs had reduced because the industry had acquired enough of its needed work force. The other reason is that in Nzoia, another Sugar industry had been opened in 1978 and the expectations of securing employment were higher in Nzoia than in Mumias. Thus, the migrant labour force was being attracted to Nzoia more than to Mumias.

Presently, the population growth rate of Mumias is estimated to be 7.1 percent per annum (GOK: 1984) and it is expected that if in the near future another major industrial establishment will not come up then the growth rate will further decline. It is projected that by the year 2008, the population growth rate will be 6 percent per annum. Apart from the reasons given above, the other evidence that supports this contention is the decreases in household sizes over the years. As urbanization continues in the town, the average household size has been decreasing. In 1969, the average size was 6.5, in 1979 it had reduced to 5.2 and in 1988 average household size was found to be 4.9 persons. Compared to the national population growth rate of 3.8 percent per annum, however, the population growth rate of Mumias is still very high. In the town, this phenomenon of high population growth has had a direct impact on the housing situation in the town. Soon after the establishment of the Sugar industry, which actually influenced the high population growth in the town, housing requirement increased. In direct response to this, the Nucleus Estate and

Site and service schemes were developed to provide the required accomodation. But since these developments were not adequate, slum and squatters such as in Shibale and Mjini started proliferating. The unprecedented growth in population also found the land values rising from Ksh. 5,000.00 per acre to as high as Ksh. 50,000.00 per acre. This increased value of land has gradually also affected the cost of housing construction.

Even with the present population growth rate of 7.1 percent per annum which will consequently reduce to about 6 percent per annum, the pressure on housing will continue. As it will be shown in chapter four, the largest proportion of the future housing needs will infact be arising from new household formation which is a direct consequence of population growth.

### 2.3.2 EMPLOYMENT AND INCOMES

Mumias has for a long time been termed as "a poor town" (Khaguli:1981). This term has been carried for the town because of its low levels of income earnings, lack of employment opportunities and low levels of commercial activities. However, with the establishment of the Sugar industry, whose impact have now been noticed, the town is gradually changing to a wealthy town; this is reflected in the employment pattern and income levels of the people.

### Employment Structure

The sources of employment can be broadly categorised into two, the public sector and the private sector employment. The public sector provides employment for over 600 people. These Civil Servants are employment in the Administration, Education and Agricultural Ministries. With the upgrading of the town to town council and with the Rural Trade and Production Centre Strategy, it is expected that more public workers will be employed in the town.

The private sector is the largest employer in the town. Most of those working in this sector are either engaged in commercial or industrial activities. Mumias Sugar industry is the largest single employer in the private sector. It has a total workforce of about 8,500 workers half of whom are casual employees. It is however only about 5,600 of these workers who reside in Mumias town. The other industrial establishments that offer substantial employment are the tractor yards. There are three tractor yards with a total labour force of 200 workers.

Due to the spill over effect of the giant sugar industry, a number of small-scale industrial activities have also been established. These range from a Bakery, Carpentry and joinery workshop to bicycle repairs. There are a total of 54 small-scale enterprises with each employing between two to ten people. Their total employment is over 300 workers.



Within the private sector the commercial sub-sector is another main source of employment. The majority of those employed in this sub-sector are however not permanently employed especially those in wage employment. The commercial enterprises with the largest number of permanent wage earners is the bank and the Mumias outgrowers company which employ 24 and 18 workers respectively. The rest of the workers in the commercial sub-sector are engaged in a wide range of businesses like wholesale shops, retail trade, petrol service stations and even hawking. In total, the commercial sub-sector employs approximately 900 people, most of whom are self employed.

TABLE 2:2 SOURCES AND LEVELS OF EMPLOYMENT

| SOURCE OF EMPLOYMENT                    | NO. OF PERSONS<br>EMPLOYED | PERCENTAGE<br>OF TOTAL |
|-----------------------------------------|----------------------------|------------------------|
| PUBLIC SECTOR                           | 600                        | 5.6                    |
| PRIVATE SECTOR: MUMIAS SUGAR            | 8500                       | 78.7                   |
| : TRACTOR YARDS                         | 200                        | 1.9                    |
| : SMALL-SCALE<br>INDUSTRIES             | 300                        | 2.8                    |
| : AGRICULTURE                           | 200                        | 1.9                    |
| : COMMERCE                              | 900                        | 8.3                    |
| : OTHERS (e.g. .<br>Transport business) | 100                        | 0.9                    |
| TOTALS                                  | 10800                      | 100.1                  |

Source: Field Survey 1988

In total therefore Mumias town provides employment for approximately 10800 people. However, it should be noted that only about 7,700 of these reside in the study area. The rest, 2,900 are the Mumias Sugar Company workers who reside in the company housing estates in Eluche, Ebutunya and Kholera which are outside the town while the remainder commute from as far as Bungoma and Kakamega. The unemployment rate in the town is estimated to be 21.7 percent.

The relationship between employment and housing in the town is that as more employment opportunities are created, more housing units will be required. The situation of now is that only the Mumias Sugar Factory and some few public departments have tried to provide housing for their workers. This has forced a majority of the workers to look for shelter else-where in the town, mostly from individual private developers.

In future, the number of workers in the town will obviously increase but there are no plans by the prospective employers to provide housing. During the survey, none of the public institutions or even private employers indicated any future plans of building houses for their staff. It is therefore expected that the workers will continue searching for accomodation elsewhere.

### Incomes

Income levels are relatively still low, with its distribution being highly skewed. The dependence on agricultural related activities have made the incomes to be highly variable especially

for those in non-wage employment. During harvesting season (mainly of Sugar cane) when the farmers receive thousands of shilling from the sale of cane, part of the money is spent in the town, making the traders to receive higher incomes. During the harvesting season, the survey found out that the incomes of those in non-wage employment rise, in most cases more than twice the average of the other seasons.

Income differentiation based on residential areas is significant in the town. Generally Shibale, Lukoye, site and service and Warabuni have higher average incomes than Ekeru, Mjini and Mayoni if the Nucleus estate is excluded. Shibale has the highest average income which is approximately Ksh. 3,225 per month. Lukoye, the Site and Service scheme and Warabuni have monthly average incomes of approximately Ksh. 2,463, Ksh. 2,425 and Ksh. 2,363 respectively. Mjini has the lowest which is approximately Ksh. 950 per month. In the squatter settlement of Mjini and Lumino, the majority of its inhabitants earn very low incomes because many of them are not engage in wage employment. They mostly depend on working and subsistence farming for their living. In a sample of 20 households, in the area, it was found 19 households earned incomes of less than Ksh. 2000.00 per month.

TABLE 2:3 LEVELS OF INCOMES IN VARIOUS RESIDENTIAL AREAS

| LEVELS OF<br>MONTHLY<br>INCOMES(KSH) | LUMINO &<br>MJINI | SITE & SER-<br>VICE SCHEME | WARABUNI &<br>EKAMA | EKERO | SHIBALE | LUKOYE | MAYONI | TOTAL | %     |
|--------------------------------------|-------------------|----------------------------|---------------------|-------|---------|--------|--------|-------|-------|
| 500                                  | 6                 |                            | 1                   | 4     | 1       | 2      | 3      | 17    | 14.2  |
| 501 - 1000                           | 5                 |                            |                     | 2     |         | 1      | 2      | 10    | 8.3   |
| 1001 - 1500                          | 8                 | 4                          | 4                   | 5     |         | 2      |        | 23    | 19.2  |
| 1501 - 2000                          |                   | 2                          | 2                   | 3     | 3       |        |        | 10    | 8.3   |
| 2001 - 2500                          | 1                 |                            | 7                   | 1     |         | 3      | 1      | 12    | 10.0  |
| 2501 - 3000                          |                   |                            |                     | 1     | 1       | 6      |        | 8     | 6.7   |
| 3001 - 3500                          |                   |                            | 3                   |       | 4       | 4      |        | 11    | 9.2   |
| 3501 - 4000                          |                   | 3                          | 1                   | 2     | 8       |        | 1      | 15    | 12.5  |
| 4001 - 4500                          |                   |                            |                     |       | 2       | 1      | 3      | 8     | 6.7   |
| 4501 +                               |                   | 1                          | 2                   | 2     | 1       | 2      |        | 6     | 5.0   |
| TOTAL                                | 20                | 10                         | 20                  | 20    | 20      | 20     | 20     | 120   | 100.1 |
| AVERAGE<br>INCOMES(KSH)              | 950               | 2425                       | 2363                | 1750  | 3225    | 2463   | 1088   |       |       |

Source: Field Survey 1988

The analysis of income levels in the different residential areas show that there is a positive correlation between incomes and the housing condition with the exception of Shibale. For example in the site and service scheme, Lureko (residence for most senior civil servants) and Mayoni where housing is generally of better quality, the households income levels are relatively higher. The areas with poor quality houses such as Mjini and Lumino have relatively lower incomes. The only exception to this generalization is the case of Shibale.

Shibale despite the average monthly household incomes being higher, its residential houses are of poorly quality both structurally and environmentally. This divergence from the general norm in the town is not easy to explain. However, the probable reason is that a majority of the residents in the area are squatters and they find the risk of constructing better houses very high. The fear surrounding them is that they may be evicted at any time and hence the loss will be much higher if one had built a permanent house.

The above analysis indicates that income levels of households have a direct impact on housing. In Mumias town where about 51.7 percent of the households interviewed have incomes below Ksh. 2500 33.6 percent between Ksh. 2500-4000 and only 11.7 percent earning over Ksh. 4000 per month, such income levels limits the peoples ability to meet their housing needs. The existing situation in the town attests to this. The low-income urban dwellers are living in slum conditions and are overcrowded because they do not have the means to acquire adequate decent housing. It has also been found that the low income urban dwellers who have rented houses devote a large proportion, about 35 percent, of their incomes to meeting their housing needs.

Although it is expected that due to the development of the town, which will bring about increased higher earning opportunities the percentage of the towns' population in the lower income bracket will decrease to 40 percent in future, their numbers in absolute terms will increase due to the increase in population.

In assessing the future housing needs therefore efforts must be made to see as to how best the low income earners can be catered for.

### 2.3.3 INDUSTRY AND COMMERCE

Industry and Commerce form part of the main economic activities that led to the growth of Mumias since the 1970s and more specifically between 1979 to 1988, the industrial and commercial activities have increased drastically. During that period the commercial and industrial enterprises increased from a total of 180 to 427 establishments.

The industrial activities in the study area fall under both the formal and informal sectors. The largest single industrial establishment in the formal sector is the Mumias Sugar industry. Within this sector are also four tractor yards which deal with tractor servicing.

In the informal sector category the activities range from bicycle repairs to motor vehicle garages and transport business. These enterprises are mainly small scale establishments. In this category there are also carpentry, joinery, welding and other repair and servicing enterprises. The table below shows the number of industrial establishment in the town and their rates of growth between 1979-1988.

TABLE 2:4 TYPES AND NUMBER OF INDUSTRIAL ENTERPRISES AND RATE OF INCREASE BETWEEN 1979-1988

| TYPE OF INDUSTRIAL ENTERPRISE | NO. OF ENTERPRISES |      | % INCREASE |
|-------------------------------|--------------------|------|------------|
|                               | 1979               | 1988 |            |
| SUGAR INDUSTRY                | 1                  | 1    | 0          |
| TRACTOR YARDS                 | 2                  | 4    | 100        |
| CARPENTRY                     | 2                  | 16   | 700        |
| BICYCLE REPAIR                | 4                  | 19   | 375        |
| WEILDING                      | 0                  | 8    | 800        |
| MOTOR VEHICLE GARAGES         | 0                  | 6    | 600        |
| BAKARIES                      | 2                  | 1    | -100       |
| POSHO MILLS                   | 3                  | 5    | 67         |
| RADIO REPAIR                  | 0                  | 3    | 300        |
| SHOE REPAIR                   | 4                  | 3    | -33        |
| WATCH REPAIR                  | 3                  | 3    | 0          |
| TOTAL                         | 21                 | 69   | 228        |

Source: Khaguli 1979 and field Survey 1988

In the ten year period, as the table above indicates, the industrial enterprises increased by 228 percent. If the present rates of increase are maintained, it is expected that in the next twenty years, this is up to the year 2008, there will be over 300 such establishments. . .

The largest number of the commercial activities in the town are concentrated in Shibale and Mumias old town. Although a



Plate 1 - High rise business premises under Construction. This indicate the expected future expansion of the commercial sector in the town.



Plate 2 - A modern private health facility in Lukoye. It has come up due to increased demand as population increases.



majority of the commercial enterprises are retail shops selling household provisions, their numbers and diversity have significantly increased over the years. The table below gives the details.

TABLE 2:5 TYPES AND GROWTH TRENDS OF COMMERCIAL ACTIVITIES  
1979-1988

| TYPE OF COMMERCIAL<br>ENTERPRISE | NO. OF ENTERPRISE |      | % INCREASE |
|----------------------------------|-------------------|------|------------|
|                                  | 1979              | 1988 |            |
| RETAIL SHOPS                     | 75                | 105  | 40         |
| WHOLESALE SHOPS                  | 7                 | 10   | 43         |
| BUTCHERIES                       | 9                 | 20   | 122        |
| HOTELS AND RESTAURANTS           | 9                 | 15   | 67         |
| BARS AND LODGINGS                | 7                 | 11   | 57         |
| TAILORING                        | 15                | 38   | 153        |
| STUDIOS                          | 5                 | 3    | -40        |
| SHOE DEALERS                     | 1                 | 6    | 500        |
| PETROL STATIONS                  | 3                 | 4    | 33         |
| BANKS                            | 1                 | 1    | 0          |
| KIOSKS                           | 16                | 25   | 56         |
| BARBERS                          | 1                 | 3    | 200        |
| BOOKSHOPS                        | 1                 | 3    | 300        |
| DAIRIES                          | 0                 | 1    | 100        |
| MUSIC STORES                     | 0                 | 1    | 100        |
| TOTAL                            | 149               | 246  | 65         |

Source: Khaguli: 1979 and field survey 1988

The town indicates potentials for further growth of the commercial activities although it has been found that the existing enterprises are operating at low levels in terms of the range of goods and services offered (DURP: 1988). It is however expected that in the twenty year period as from 1988, the commercial enterprises have the ability to increase to 320 establishments.

The increased establishment of the commercial and industrial activities from 170 in 1979 to 315 establishment in 1988 have to some extent contributed to the present housing shortages. These activities have over the year attracted more people into the town due to their pull factor in terms of the employment opportunities they offered. The doubling of these activities from 315 in 1988 to 620 in 2008 will create more employment opportunities in the town and by so doing attract more people. So, the growth of the industrial and commercial sectors will not only offer more employment, but it will also add to the growth of housing needs by increasing the number of households to be housed.

#### 2.4.0 SUMMARY

This chapter has introduced and discussed the major physical, historical and socio-economic characteristics of the study area which have a bearing to the assessment of future housing needs.

It was found out that Mumias town is located in a rich agricultural area which provides the town with potentials for further growth and development. The area does not have serious

physical constraints for the development of housing. It is probably only the high land values that may hinder housing development especially for the low-income earners since such high costs of land will increase the housing costs. The urban structure which is characterised by dispersed centres will also have an adverse effect on housing development. This is mainly in terms of the cost of providing infrastructural facilities such as water, sewerage and electricity.

Historically, the growth and development of Mumias has been characterised by unsteady growth, of ups and downs, up to 1972 when Mumias Sugar industry was established. Since then, steady growth have been experienced which has brought about increased housing problems. The impact of the Sugar industry on housing is that its presence will attract more immigrants to the town in search of employment and hence increasing the housing requirement in the area.

Household incomes have been found to have a direct relationship to the housing conditions in the town. Most of the low-income earners live in slum and squatter settlements where the housing quality is poor. This shows that as the number of people in the low-income bracket remains high, the housing needs will be high too. Lastly, as employment opportunities in the town in both the commercial and industrial sectors expand in the future, the increase in population due to immigration will be significant. This coupled with the natural population increases will lead to more formation of more new households which will

require more housing in the town.

In conclusion, therefore, it has been seen that the historical and socio-economic characteristics and development trends in the town all attest to the belief that housing needs will increase over the years in future.

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### CHAPTER THREE

#### 3.0.0 EXISTING HOUSING SITUATION IN MUMIAS

##### 3.1.1 HOUSING POLICY: AN OVERVIEW

The existing housing situation in Mumias must not only be analysed in terms of the characteristics of the existing housing stock but also in relation to the housing policies in Kenya and how these policies have affected the housing situation. This section therefore focuses on those policies that have led to the present housing situation and which are likely to influence housing development in future.

The housing policy in Kenya as stipulated in Sessional paper No. 5 of 1966/77 on Housing Policy for Kenya, and in the National Development Plan has its main policy objective as the provision of adequate shelter in terms of privacy, security and healthy environment at the lowest possible cost to a maximum number of people. In achieving this policy, the government have outlined a number of programmes in the five year development plan since 1966. Some of the programmes which are relevant to urban areas are:

1. Provision of loans and other financial assistance to local authorities for the construction of housing.
2. The direct construction of housing by the government where local authorities cannot undertake it.

3. Government assistance to companies who undertake employee housing projects.
4. Encouraging private enterprises to participate in the financing of private housing.
5. Promotion of self-help in housing construction in urban areas through site and service schemes.
6. Formulation and adoption of realistic and performance oriented building design and standards.
7. Research into and promotion of the use of local building materials and construction techniques.

In Mumias, these housing programmes have affected the housing situation depending on the level at which they have been implemented. When the Sugar industry was established in 1972, in line with the policy programmes of governments direct involvement and assistance to companies in housing construction, the government agreed to construct housing for the workers of the company in the town. However, up to 1973 when the Sugar industry was just about to start its production, the government had not implemented the housing programme as agreed between her, the local authority and the Sugar Company. When the government declined to undertake the above, the Company had to take quick action and built initially 2400 housing units for the workers, which were not adequate for the workers need (Khaguli: 1974).

The effects of the non-commitment of the government to implement the housing policy programmes as planned, is that

those low-income workers who did not secure housing in the company's Nucleus estate started looking for alternatives. Due to their income constraints, the alternative that became possible for them was the construction of their own 'make shift' housing structure in Shibale, Lukoye and Mjini. The proliferation of slum and squatter settlements in the town therefore came as a result of the governments' inability to implement the said housing programme.

The housing policy in Kenya also entrusts the local authority with the construction of houses. Since the pre-independence period the local authority has done very little. Apart from a few houses that are occupied by senior civil servants in the town, the local authority have not put up any rental houses for its local people. It is also noted that in terms of the governments and local authorities efforts to assist individual developers in housing construction in order to ease housing problems in urban areas little have been done. It was only in 1979 when the government through the National Housing Corporation, and the local authority (Kakamega County Council) that the policy of assisting private individuals in housing construction was implemented through the present site and service scheme. Beside this, however, the general performance of the government in providing Financial and technical aid to private housing developers have been very poor.

Probably the area in which the present housing policy had failed most in Mumias is that of housing standards. Most of the



houses in the town have been build without approved plans and hence not in conformity with the building by-laws. Due to the none adherence to the building standards, we find that the bulk of the housing stock is sub-standard, lacking the essential services such as water, electricity and sanitary facilities. This therefore flouts the policy objective of "maintaining a healthy and safe urban environment free from danger of epidemics and fire," (GOK: 1979 p. 172). Since most of the dwellings are of slum conditions.

Although the use of local building materials and technology is widespread in the town as in conformity with the government policy of monitoring the use of local building materials, their use is still in a 'traditional' way. Although the town exhibits great potentials in the use of local building materials and construction technique, no research is being undertaken at the high levels to come out with the appropriate modifications for their use. The available local materials have therefore continued to be used in construction of sub-standard houses in the slums.

In summary, it can therefore be argued that although Kenya has a specific and comprehensive housing policy, its adoption and implementation in the study area has been very minimal. As a result, the housing problems have continued to worsen from among other things the neglection of the policies. This therefore calls for re-addressing the policy issues as done in chapter five so that future housing development reflect the housing policy objectives.

### 3.2.0 CHARACTERISTICS OF EXISTING HOUSING

The existing housing stock in the town is comprised of approximately 3492 housing units, varying in size from single roomed to more than ten roomed units. In order to effectively assess the future housing need, it is required that the characteristic of the existing stock is analysed (Kokus: 1974) so that it can be seen how this will affect future housing requirements.

The analysis and evaluation of the characteristics of existing housing stock will be done in terms of the housing quality; building materials and technology; age of the buildings, depreciation and maintenance; housing ownership; occupancy and rent levels and the availability of infrastructural facilities.

#### 3.2.1 HOUSING QUALITY

The present housing stock in the town is classified into three broad quality categories depending on various attributes as regards both structural and non-structural conditions. The classification of the housing quality into the broad categories of GOOD FAIR and POOR has been based on Swazuri's methodology which he applied when estimating urban housing needs in Malindi (Swazuri: 1986). In classfying the dwelling units into the above quality categories, the variables and attributes considered as in Swazuri's methodology are:

- a) Structural conditions - the physical structures of the dwelling in terms of the building materials and the conditions of the walls, floors and roofs.
- b) The environmental neighbourhood of the dwellings - house spacing accessibility and availability and closeness to social amenities such as shops, school etc.
- c) the availability of infrastructural amenities: - these are facilities such as sewerage and sanitation, water, electricity and the methods of solid waste disposal.

For each housing unit in the study area a score was objectively awarded for each of the variables/attributes as shown by the point matrix table 3.1 below. The table gives a detailed breakdown of attributes of quality for each units components. The scores for each unit were summed up. The maximum points that a unit could score is 100 and minimum score is zero. Those housing units that scored between 100 - 60 points were categorised as GOOD, those that scored between 59 - 30 as FAIR and those scoring below 30 were categorised as POOR quality housing units.

Under this quality categorisation, the dwelling units which are of POOR quality are those which are unfit for habitation. Such houses will therefore require replacement. FAIR dwelling units are those which can be turned to habitable units if some repairs and other improvement are undertaken. The last category, those dwelling of GOOD quality, are presently the most habitable

TABLE 3:1 - HOUSING QUALITY SCORE MATRIX

| COMPONENT                          | POINTS ATTRIBUTES |          |          |           |
|------------------------------------|-------------------|----------|----------|-----------|
| A. STRUCTURAL CONDITIONS           |                   |          |          |           |
| 1. PHYSICAL CONDITION OF STRUCTURE |                   |          |          |           |
| (i) WALLS                          | GOOD=10-7         | FAIR=6-3 | POOR=2-1 | V. POOR=0 |
| (ii) ROOF                          | GOOD=10-7         | FAIR=6-3 | POOR=2-1 | V. POOR=0 |
| (iii) FLOOR                        | GOOD=10-7         | FAIR=6-3 | POOR=2-1 | V. POOR=0 |
| 2. REPAIRS AND MAINTENANCE         |                   |          |          |           |
|                                    | GOOD=10-7         | FAIR=6-3 | POOR=2-1 | V. POOR=0 |
| B. ENVIRONMENTAL NEIGHBOURHOOD     |                   |          |          |           |
| 1. DISTANCE TO RECREATION FACILITY | V. NEAR=4         | NEAR=3   | FAR =2   | V. FAR=1  |
| 2. DISTANCE TO SHOP                | V. NEAR=4         | NEAR=3   | FAR= 2   | V. FAR=1  |
| 3. DISTANCE TO MARKET              | V. NEAR=4         | NEAR=3   | FAR= 2   | V. FAR=1  |
| 4. DISTANCE TO SCHOOL              | V. NEAR=4         | NEAR=3   | FAR= 2   | V. FAR=1  |
| 5. DISTANCE TO HOSPITAL            | V. NEAR=4         | NEAR=3   | FAR= 2   | V. FAR=1  |
| 6. ACCESSIBILITY                   | GOOD=4            | FAIR=3   | POOR=2   | V. POOR=1 |
| 7. HOUSE SPACING                   | GOOD=4            | FIAR=3   | POOR=2   | V. POOR=1 |
| 8. STREET LIGHTING                 | YES=4             | NONE=0   |          |           |
| C. INFRASTRUCTURAL FACILITIES      |                   |          |          |           |
| 1. SEWERAGE /                      | IFT=10-8          | CIFT=7-6 | IPL=5-3  | CPL=2-1   |
| 2. REFUSE COLLECTION               | GOOD=1-7          | FAIR=6-3 | POOR=2-1 | V. POOR=0 |
| 3. WATER AVAILABILITY              | V. NEAR=4         | NEAR=3   | FAR=2    | V. FAR=1  |
| 4. POWER                           | ELECT=0           | PARR=1   |          |           |

KEY

1. V. POOR = VERY POOR
2. V. NEAR = VERY NEAR
3. V. FAR = VERY FAR
4. IFT = INDIVIDUAL FLUSH TOILET
5. CFT = COMMUNAL FLUSH TOILET
6. CPL = COMMUNAL PIT LATRINE
7. IPL = INDIVIDUAL PIT LATRINE
8. ELECT. = ELECTRICITY.

units. These houses generally depict good structural conditions, close to social amenities and well served with infrastructural facilities such as water, electricity and sewerage.

The table below shows the housing quality for each residential area in the town.

TABLE 3:2 QUALITY OF THE EXISTING HOUSING STOCK

| RESIDENTIAL AREA | GOOD<br>NO.OF<br>UNITS | %    | FAIR<br>NO.OF<br>UNITS | %    | POOR<br>NO.OF<br>UNITS | %    | TOTAL<br>NO.OF<br>UNITS | %    |
|------------------|------------------------|------|------------------------|------|------------------------|------|-------------------------|------|
| MJINI-LUMINO     | 110                    | 33.5 | 135                    | 41.2 | 83                     | 25.3 | 328                     | 9.5  |
| SITE AND SERVICE | 144                    | 100  | -                      | -    | -                      | -    | 144                     | 4.2  |
| MISSION VILLAGE  | 35                     | 36.5 | 40                     | 41.6 | 21                     | 21.9 | 96                      | 2.8  |
| EKAMA-WARABUNI   | 74                     | 33.6 | 84                     | 38.2 | 62                     | 28.2 | 220                     | 6.4  |
| LUKOYE           | 143                    | 35.9 | 124                    | 31.2 | 131                    | 32.9 | 398                     | 11.5 |
| SHIBALE          | 104                    | 20.8 | 161                    | 32.3 | 234                    | 46.9 | 499                     | 14.4 |
| MAYONI           | 447                    | 71.2 | 108                    | 17.2 | 72                     | 11.5 |                         |      |
| NUCLEUS ESTATE   | 699                    | 100  | -                      | -    | -                      | -    | 699                     | 19.3 |
| EKERO            | 173                    | 36   | 144                    | 29   | 164                    | 34.1 | 481                     | 13.9 |
| TOTAL            | 1929                   | 55.2 | 796                    | 22.8 | 767                    | 21.9 | 3492                    | 100  |

Source: Field Survey 1988

In Mumias town, 55 percent of the housing stock is of GOOD quality, 23 percent FAIR and 22 percent falls under POOR quality housing, in terms of spatial distribution, it was found that the



Plate 3 - POOR quality houses in the squatter settlement of Mjini



Plate 4 - A POOR quality housing in Lumino

low income areas like Mjini, Shibale, Ekeru and Lukoye have a large proportion of their housing, (25 percent, 46 percent, 34 percent and 32.9 percent respectively) in the POOR quality category. On the other hand, the high income and middle income areas such as the site and service scheme, Nucleus Estate, Mayoni and the Civil Servant residential area in Ekama have most of their houses in the GOOD quality category income levels can therefore be said to be contributor in this. This is because income level is a decisive factor in the type of building materials used, the provision of infrastructural services and so on.

The implication of having a large number of houses of fair and poor quality in the town to future housing needs is that these houses will require to be replaced and/or improved. As shown in chapter four, about 760 'unfit' dwelling units will require replacement.

### 3.2.2 BUILDING MATERIALS AND TECHNOLOGY

#### WALLS:

The existing housing stock has been built using a variety of building materials. The most prominent building material for the walls is mud and wattle (42.9 percent) and concrete blocks (50.5 percent). Mud and wattle is more predominate in Mjini, Lukoye, Shibale and Ekeru, Mud and Wattle has been widely used especially in the low-income residential areas because it is locally and easily available and relatively the cheapest.



Plate 5 - A mud and wattle walled house under construction in Mjini.



Plate 6: - A modern house built with stone and tiles.



Stone and concrete blocks on the other hand have widely been used in areas where modern residential houses have been put up such as in the site and service scheme, Mayoni, Nucleus Estate, the Mumias outgrowers estate, Ekama (Senior government houses) and in some other scattered areas. Within the town. Although concrete blocks and stones are the most preferred for housing construction (68.7 percent of the household interviewed) their prices are limiting their use especially for the low income earners. In the town, a concrete block costs about Ksh. 6.50, stone costs approximately Ksh. 4.50 per foot. Although stone is relatively cheap when compared to concrete blocks, stone is obtained from outside the town council and it costs about Ksh. 350.00 per lorry load. It is due to the cost factor that have prohibited individuals from using them in constructing their houses.

Some houses in Mumias town are also built of materials such as Bricks (2.6 percent), G.C.I. (2 percent) and other materials like timber. Clay bricks are locally made and it costs only about Ksh. 1.20 per brick. The present demand for bricks is higher than the supply from the local artisans. Trends indicate that burnt brick is a promising alternative building material in Mumias.



Plate 7 - Housing walls built with clay bricks.



Plate 8 - Site for making and drying clay bricks. A promising alternative building material.

TABLE 3:3 BUILDING MATERIALS FOR WALLS

| RESIDENTIAL AREA | WALL MATERIALS       |                   |       |        |        |                         | TOTAL |
|------------------|----------------------|-------------------|-------|--------|--------|-------------------------|-------|
|                  | MUD<br>AND<br>WATTLE | CONCRETE<br>BLOCK | STONE | BRICKS | G.C.I. | OTHER<br>E.G.<br>TIMBER |       |
| MJINI-LUMINO     | 221                  | 68                | 11    | 17     | 4      | 7                       | 328   |
| SITE AND SERVICE | -                    | 100               | 30    | 14     | -      | -                       | 144   |
| MISSION VILLAGE  | 26                   | 19                | 8     | 3      | 40     | -                       | 96    |
| WARABUNI-EKAMA   | 151                  | 39                | 2     | 23     | -      | 5                       | 220   |
| LUKOYE           | 309                  | 53                | -     | 36     | -      | -                       | 398   |
| MAYONI           | 108                  | 497               | 4     | 12     | 6      | -                       | 627   |
| NUCLEUS ESTATE   | -                    | 699               | -     | -      | -      | -                       | 699   |
| EKERO            | 324                  | 141               | 1     | 1      | -      | 14                      | 481   |
| SHIBALE          | 359                  | 102               | 9     | -      | 21     | 8                       | 499   |
| TOTAL            | 1498                 | 1718              | 65    | 106    | 71     | 34                      | 3492  |
| % OF TOTAL       | 42.9                 | 50.5              | 1.0   | 2.6    | 2.0    | 1.0                     | 100   |

Source: Field Survey 1988

ROOF:

A diversity of roofing materials such as Grass thatch, G.C.I and asbestos are used in Mumias. Grass thatch which comprises of 16 percent of the roofing material of the existing housing stock is mainly been used in low income owneroccupied houses. Grass thatch, which is the traditional roofing material in the area is falling out of use and replaced by iron sheets because the thatching grass is no longer abundantly available.



Plate 9 - Grass - Thatch houses in Lukoye.



Plate 10 - Predominance of G.C.I. as a roofing material.

TABLE 3.4 ROOFING MATERIALS

| RESIDENTIAL AREA | MATERIALS |        |          |      |       | TOTAL |
|------------------|-----------|--------|----------|------|-------|-------|
|                  | G.C.I.    | THATCH | ASBESTOS | TILE | OTHER |       |
| MJINI-LUMINO     | 208       | 74     | -        | -    | 46    | 328   |
| SITE AND SERVICE | 144       | -      | -        | -    | -     | 144   |
| MISSION VILLAGE  | 53        | 18     | 14       | 6    | 5     | 96    |
| WARABUNI-EKAMA   | 146       | 46     | 12       | 1    | 15    | 220   |
| LUKOYE           | 301       | 81     | -        | -    | 16    | 398   |
| MAYONI           | 547       | 64     | 5        | -    | 11    | 627   |
| SHIBALE          | 297       | 143    | -        | -    | 59    | 499   |
| NUCLEUS ESTATE   | 624       | -      | 65       | 10   | -     | 481   |
| EKERO            | 275       | 136    | -        | -    | 70    | 481   |
| TOTAL            | 2595      | 560    | 98       | 7    | 232   | 3492  |
| % OF TOTAL       | 74.3      | 16.0   | 2.8      | 0.2  | 6.7   | 100   |

Source: Field Survey 1988

Corrugated iron sheets (G.C.I) have continuously gained popularity in the town to the extent that 74 percent of the present dwellings have been roofed using it. The increased use of G.C.I. in Mumias is mainly due to two reasons. One, its price (approximately Ksh. 20.00 per foot) is lower compared to other materials like Asbestos and tiles and secondly, it can be purchased within the town or from Bungoma and Kakamega and hence relatively available.

The existing trends indicate that G.C.I. will increasingly continue to be the main roofing materials in future and the use of tiles will also increase especially for the high income residential houses. Because of the existence of red soils from which tiles can be made, there is therefore potential for its use as a locally available permanent roofing material.

### FLOOR

About 68.6 percent of the housing units in the town have cement floors and 31.4 percent earth floors. The squatter and slum settlements have the highest number of units with earth floors while a majority of cement floor are found in those areas whose houses are build of stone, brick or concrete walls. This is mainly in the nucleus estate, site and service scheme, Ekama, the Mission Village and a few scattered houses in the other areas.

TABLE 3: 5 FLOOR MATERIALS

| RESIDENTIAL AREA | MATERIALS                |      |                         |      | TOTAL |
|------------------|--------------------------|------|-------------------------|------|-------|
|                  | CEMENT<br>NO.OF<br>UNITS | %    | EARTH<br>NO.OF<br>UNITS | %    |       |
| MJINI-LUMINO     | 135                      | 41.2 | 193                     | 58.8 | 328   |
| SITE AND SERVICE | 144                      | 100  | -                       | -    | 144   |
| MISSION VILLAGE  | 63                       | 65.6 | 33                      | 34.4 | 96    |
| WARABUNI-EKAMA   | 137                      | 62.3 | 83                      | 37.7 | 220   |
| LUKOYE           | 275                      | 69.0 | 123                     | 31.0 | 398   |
| MAYONI           | 481                      | 76.7 | 146                     | 23.3 | 627   |
| SHIBALE          | 182                      | 36.5 | 317                     | 63.5 | 499   |
| NUCLEUS ESTATE   | 699                      | 100  | -                       | -    | 699   |
| EKERO            | 278                      | 57.9 | 203                     | 42.1 | 481   |
| TOTAL            | 2394                     | 68.6 | 1098                    | 31.4 | 3492  |

Apart from earth and cement as the main materials used for flooring, a mixture of mud and cow-dug is also used. This is a promising alternative material if research on how its use can be improved is undertaken. In the near future however, cement will continue to be widely used despite its ever increasing price which now stands at Ksh. 95 per 50 Kg bag.

### 3.2.3 AGE OF BUILDINGS, DEPRECIATION AND MAINTENANCE

#### AGE OF BUILDING

The age of a building is an important aspect of the housing stock, since it determines the number of units that will fall out of use due to old age. In Mumias, a majority of the houses were recently built, 80 percent were built after 1965 and only about one percent were built more than 50 years ago.

TABLE 3:6 AGE OF RESIDENTIAL STRUCTURES

| AGE CLASS<br>(YEARS) | NO. OF UNITS | %     | % INCREASE<br>PER PERIOD |
|----------------------|--------------|-------|--------------------------|
| 0 - 5                | 989          | 28.3  | 44.5                     |
| 6 - 10               | 571          | 16.3  | 34.6                     |
| 11 - 15              | 241          | 6.9   | 17.1                     |
| 16 - 20              | 1255         | 35.9  | 820.3                    |
| 21 - 25              | 54           | 1.5   | 54.5                     |
| 26 - 30              | 31           | 0.9   | 45.6                     |
| 31 - 35              | 7            | 0.2   | 11.5                     |
| 36 - 40              | 20           | 0.6   | 48.8                     |
| 41 - 45              | 5            | 0.1   | 13.8                     |
| 46 - 50              | 5            | 0.1   | 16.1                     |
| 50+                  | 31           | 0.9   | -                        |
| NOT GIVEN            | 283          | 8.1   | -                        |
| TOTAL                | 3492         | 100.0 | -                        |

Source: Field Survey 1988

In the period between 1972 - 1978, this is those houses which fall in the 16-20 years class intervals, the town experienced a boom in the increase of its housing stock because of the establishment of Mumias Sugar Industry. Since this time the rate of housing construction has been relatively high and as a result about 52 percent of the total housing stock is less than 15 years of age. Among the most recent residential housing development are the site and service scheme, the Mumias outgrowers estate and the squatter settlement at Shibale.

It can also be argued that 90 percent of the houses are less than 25 years old in age because a majority of the older houses have collapsed or replaced. This argument is based on the fact that most of the older buildings were semi-permanent whose life span was only between 20 and 30 years and hence they are no longer in existence. The 68 residential buildings in the town which are more than 30 years old are permanent houses whose life span is between 50 to 80 years. These are the structures which were built by the colonial government and few individuals using materials such as bricks, stone, tiles and G.C.I.

A large proportion (22 percent) of the existing housing stock in Mumias is therefore of poor quality not because of age per se but due to other factors that determine levels of housing depreciation such as user activities, suitability of the building materials, standard of workmanship and the subsequent maintenance



and repairs.

#### DEPRECIATION AND MAINTENANCE

Housing like any other durable good wears and tears over a period of time up to a level that it becomes obsolete. A large number of dwelling units have to be replaced in urban areas because they depreciate to a level that they are unfit for human habitation.

The rate of depreciation of the present housing stock is very high in Mumias, due to poor maintenance, and use of semi-permanent building materials. It is only in a few dwellings that routine or day-to-day maintenance which involves cleaning and inspection of the physical structure is carried out. This poor performance of preventive maintenance explains the widespread physical and environmental obsolescence of the housing stock as discussed in section 3.2.1.

Apart from this, seasonal or planned maintenance which is for rectification of the defaults on the structure is also not undertaken. This lack of corrective maintenance has resulted into the highly dilapidated housing structures. The implication of the high depreciation rates of 0.033 and 0.014 for semi permanent and permanent houses respectively, due to poor maintenance is that substantial amount of the future housing needs will arise from housing obsolescence as shown in chapter four.



Plate 11 - A house showing a case where proper maintenance and repairs are not undertaken.



Plate 12 - High rates of depreciation of homes due to poor maintenance.

### 3.2.4 OWNERSHIP OF RESIDENTIAL HOUSES

Three types of housing ownership can be identified in the town. These are Government, Institutional and private ownerships.

#### GOVERNMENT HOUSING

These include houses that have been constructed by the various government Ministries and departments and also the local authority. In the area around the old administrative 'Boma' there are about twelve units that house government officers working in the administration department; most of them junior officers. Senior government officers like the District Officer are housed in the Senior Civil Servants residential area around Ekama; there are about seven houses in this area.

The Ministry of Public Works have constructed about 40 units near the Mission Village. These are G.C.I. structures which are providing temporary accommodation for the workers but forms a significant proportion of the government houses in the town. The Ministry of water development also has houses around the Mission Village. There are five modern type of houses that house the ministry's workers who are attending to the water pumping station and reservoir. The local council has only three houses in the town which they have rented to government officers.

Over the years, the number of government housing, has not been increasing. Apart from the Public works structures which

were built in 1985, the rest of the government houses were built before 1980. In fact those in the administrative Boma were built by the colonial government. Owing to the increasing number of civil servants and the slow rate of increasing the number of units, most of the civil servants do not have government houses and have been forced to search for accommodation elsewhere, mostly in the site and service scheme.

### INSTITUTIONAL HOUSING

Under this category are the residential houses owned by institutions such as schools, hospitals and religious institutions. The well established institutions such as the Catholic Mission, and some secondary and primary school have been able to construct houses for their staff.

Although the institutions have tried to provide housing for their staff they are generally not adequate to accommodate all these workers. For example D.E.B. Primary School has 32 teachers and only 4 housing units of 2 rooms each. On the other hand, Mumias Muslim Secondary has 10 employees but only a single house which is occupied by the headmaster.

Among the institutions interviewed such as Mumias Muslim Secondary School, the Mill Hill Mission Hospital did not have any plans underway to construct more houses. This therefore shows that the employees of these institutions will continue depending on rental houses provided by private developers since more institutional housing seems not to be forthcoming in the future.

## PRIVATE HOUSING

The houses under private ownership falls under two categories. Private company houses and Private individual houses. Under the first category are the Mumias Sugar Company and Mumias Outgrowers Company houses. Mumias Sugar Company is the single private developer with the largest number of housing units in the study area. Out of a total of 2844 units which the company has constructed for its workers, 1040 units are within the study area, this is in the Nucleus estate and Mayoni.

The Mumias Company houses are of three types. The first type are the small single roomed units for the labourers and artisans. The second are 2-3 room units for the middle level staff while the third are managerial and other senior staff houses. Since 1973, the company has increased the number of units from 244 units to the present 1040 units but still these units are not adequate because the labourforce has been increasing faster. There are however plans to construct more houses once funds are available, so as to ease the existing overcrowding especially in the junior staff residential houses.

The Mumias outgrower company has recently in 1980 constructed about 15 units. These houses are located between the site and service scheme and the senior civil servant quarters in Ekama. Most of these houses have been leased to Mumias Sugar Company for its workers. The outgrowers company plans to construct about 20 more houses in the future so as to ease the housing problem especially for the high income earners.

Individual private developers have constructed houses in their plots mainly for providing themselves with housing although some have constructed houses for rental purposes. Due to lack of finances to construct good houses, most of the individual developers houses are sub-standard especially in Shibale, Lukoye and Mjini residential areas. The houses constructed by private developers are characterised by simple and poor quality structure, lacking the basic facilities like water, sanitation and proper refuse disposal.

The government through the National Housing Scheme have helped about 90 private developers through the site and service scheme programme to construct better houses for both rental and owner occupying purposes. With proper financial assistance, the private housing developers have the potential of constructing more houses.

#### 3.2.5 OCCUPANCY RATES

The occupancy rate in the study area range between 0.8 to 3.8 persons per habitable room depending on size of households and the number of rooms in the dwelling units owned or rented by them. Occupancy rates also differ from one residential area to another as shown in the table below:

TABLE 3.7 OCCUPANCY RATES IN VARIOUS RESIDENTIAL AREAS

| RESIDENTIAL AREA | NO. OF HOUSES | NO. OF ROOMS | NO. OF PERSONS | OCCUPANCY RATE PER ROOM |
|------------------|---------------|--------------|----------------|-------------------------|
| MJINI-LUMINO     | 328           | 1210         | 3752           | 3.1                     |
| SITE AND SERVICE | 144           | 508          | 866            | 1.7                     |
| MISSION VILLAGE  | 96            | 216          | 518            | 2.4                     |
| WARABUNI-EKAMA   | 220           | 593          | 1793           | 3.0                     |
| LUKOYE           | 398           | 958          | 2780           | 2.8                     |
| MAYONI           | 627           | 1088         | 2503           | 2.3                     |
| SHIBALE          | 499           | 793          | 2854           | 3.6                     |
| NUCLEUS ESTATE   | 699           | 1012         | 2125           | 2.1                     |
| EKERO            | 481           | 905          | 2263           | 2.5                     |
| TOTAL            | 3492          | 7283         | 19454          | 2.7                     |

Source: Field Survey 1988

Shibale has the highest which is approximately 3.6 persons per room on average while the site and service scheme has the lowest, 1.4 persons per room.

The occupancy is generally high in the low-income residential areas such as Shibale, Warabuni and Mjini because household sizes are large some having up to 12 persons while most of them have rented one or two rooms. For Shibale, the rate is highest because of its proximity to the Sugar factory. Short journeys to work have influenced most workers to look for accomodation in the area.

The average occupancy rate for the whole town is estimated to be 2.8 persons per room, slightly higher than the national accepted rate of 2.5 persons per room. This therefore indicates that there is overcrowding in the town. Over the years the level of overcrowding has been increasing, in 1981, it was estimated to be 2.6 persons per room (ODA: 1981) which is now 2.7 persons. Due to continued shortage in the supply of housing, the rate of occupancy is expected to increase as population growth increases. In order to bring the level of occupancy to the national accepted standard of 2.5 per room, more housing will be required in the future, this is discussed in chapter four.

#### 3.2.6 RENT LEVELS

Rent levels are determined by four factors in Mumias viz: the size of dwelling units; this is in terms of the number of rooms; the type of structure whether permanent or semi-permanent and the residential area itself. Rents are high in the site and service scheme and around Ekama because most of the middle to high income earners live around these areas. Within the low income residential areas, Shibale has the highest rents due to its closeness to the Mumias Sugar factory while Mjini has the lowest rents.



TABLE 3:8 RENT LEVELS

| RESIDENTIAL AREA | RENT LEVELS     |       |             |             |             |              |           | NO.OF<br>RESP-<br>ONDENTS |
|------------------|-----------------|-------|-------------|-------------|-------------|--------------|-----------|---------------------------|
|                  | NO RENT<br>PAID | 1-200 | 201-<br>400 | 401-<br>600 | 601-<br>800 | 801-<br>1000 | 1000<br>+ |                           |
| MJINI-LUMINO     | 5               | 11    | 2           | 2           | -           | -            | -         | 20                        |
| SITE AND SERVICE | 2               | 1     | 5           | 1           | 2           | 1            | -         | 12                        |
| MISSION VILLAGE  | 3               | 1     | 1           | -           | -           | -            | -         | 5                         |
| WARABUNI-EKAMA   | 4               | 2     | 1           | 2           | 5           | 4            | 2         | 20                        |
| LUKOYE           | 7               | 6     | -           | 2           | -           | -            | -         | 15                        |
| MAYONI           | 5               | 3     | 2           | 1           | -           | -            | -         | 10                        |
| SHIBALE          | 4               | 8     | 2           | 1           | -           | -            | -         | 15                        |
| NUCLEUS ESTATE   | 10              | -     | -           | -           | -           | -            | -         | 10                        |
| EKERO            | 6               | 4     | 1           | 1           | 1           | -            | -         | 13                        |
| TOTAL            | 46              | 36    | 14          | 9           | 8           | 5            | 2         | 120                       |

Source: Field Survey 1988

House rents in Mumias range between Ksh. 30 to Ksh. 1,200 per month. The average rent paid per household is Ksh. 276.00. About 60 percent of the households do not pay rents. This is because they either occupy employer provided houses as in the case Mumias Sugar Company or they own their own houses.

### 3.2.7 INFRASTRUCTURAL FACILITIES

Infrastructural services such as water, lighting, roads, sewerage and other recreational and social amenities are an

intergral part of housing. This is because they provide the necessary services required by the community and hence the absence of such facilities determine the habitability of the housing physical structure and its neighbourhood. Swazuri (1986) has argued that "housing needs do not mean the requirement for the physical housing unit alone. The human living environment is composed of various factors and events which make it very important to have a good supply of infrastructural facilities" (p. 92). It is in this context that infrastructural facilities such as water supply, sewerage disposal, refuse disposal, electricity and accessibility are being analysed.

#### WATER SUPPLY

Piped water from river Lusumu is the major source of water in the town. About 307700 M<sup>3</sup> are produced monthly and there are 1491 connections. Other sources of water supply are 14 traditional wells, and 23 Handpump boreholes (Kenfinco). All the dwelling units in the site and service scheme, Nucleus estates and the outgrowers housing estate have tapped water supplies; which are individual in house connections. In the other residential areas water is obtained either by individual connection or communal water points. In Ekero, Lumino and Lukoye the main sources are boreholes, wells, streams and ponds (See plate 13).

The table below show a breakdown of the availability and use of water by source:

TABLE 3:9 SOURCES OF WATER

| WATER SOURCE          | NO. OF HOUSEHOLDS<br>(RESPONDENTS) | % OF<br>HOUSEHOLDS |
|-----------------------|------------------------------------|--------------------|
| COMMUNAL WATER POINTS | 48                                 | 40.0 .             |
| INDIVIDUAL CONNECTION | 37                                 | 30.8               |
| WELLS                 | 3                                  | 2.5                |
| BOREHOLE              | 7                                  | 5.8 .              |
| SPRING/STREAM         | 12                                 | 10.0               |
| OTHER                 | 3                                  | 2.5                |
| TOTAL                 | 120                                | 100.0 .            |

Source: Field Survey 1988.

Although piped water is available most of the households have been unable to have their own individual connections, the 1491 connections are only approximately  $\frac{2}{3}$  of the required, This had resulted into long queues in the the communal water points and the use of unsafe sources such as open wells, ponds, and streams.

With the continued increase in industrial and commercial activities the open water sources will increasingly become polluted and this will render them unsafe. For this reason and the expected increase of water demand to about 608000 M<sup>3</sup> per month, the present water reticulation system will require expansion so as to be able to meet the increased demand.



Plate 13: Dirty water from ponds fetched for domestic uses. Inadequate pipe water supplies leading to fetching of water from unsafe sources.



Plate 14 - Inadequate and Poor sanitation and refuse disposal facilities.

## SEWERAGE AND SANITATION

The town has three main forms of household waste disposal viz: pit latrines; septic tanks and a sewer system with oxidization ponds. In the old town, Shibale, Lukoye and Ekero about 90 percent of the households use pit latrines. The site and service scheme and Nucleus estate, water borne systems are used with the waste being disposed in oxidization ponds. Septic tanks are used mainly in institutional houses such as the outgrowers housing estate, Mill Hill Mission and some few individuals.

The sewerage system in the site and service scheme are presently in poor condition because of the clogging up of the oxidization ponds, which have resulted to back-flows which pose great health risks. On the other hand, the pit latrines in areas like Mjini and Shibale are a health hazard because these areas are densely populated and about 60 percent of the facilities are shared by households. This has greatly reduced the life span of these facilities and hence they get filled up in a short period.

The most desired sanitary facility for a town like Mumias is a water borne sewer reticulation system for the whole will however be expensive due to the scattered nature of commercial and residential areas.

## REFUSE DISPOSAL

With the exception of the Nucleus estate, there is no organised procedure of cabbage collection. At the Nucleus estate,

is deposited in bins and collected regularly for compost or land fill. In the other residential areas, garbage is normally thrown behind buildings or in small pits. These methods pose a threat to the health of the urban residents.

### ELECTRICITY

Mumias is served by electricity which was extended to the town in 1976 from the national grid line. Electricity however is available mainly in the commercial centres with the residential areas remaining unserved. The areas served include Mill Hill Mission, Nucleus estate, Mayoni and the outgrowers housing estate.

The rest of the residential areas like the site and service scheme, Ekero, Mjini and Lukoye do not have electricity.

### ACCESSIBILITY

The road network in terms of residential accessibility is inadequate and very poor. It is only in the well planned estates like site and service scheme and the Nucleus estate that proper accessibility is provided for. In the other areas, the roads are loose-surfaced and in bad condition due to poor maintenance. In the uncontrolled residential areas like Shibale, no access roads are available and even pedestrian walkways are very narrow and passing between houses.

Mumias town therefore requires a proper urban road network which will be able to provide easy accessibility not only to every

housing unit and economic activity areas but also to accomodate the increased future traffic.

#### POST AND TELEPHONE SERVICES

Mumias has a post office and a subscribers Trunk Dial (STD) services. Although these facilities are presently being underutilized, with the towns continued growth and development more of these services will be required.

#### 3.3.0 SUMMARY

The housing needs in Mumias are undoubtedly great both in terms of the physical dwellings and the services that are complementary to housing. Although the government has a well defined housing policy and programmes. Very little have been done to translate the programmes into reality. Very little if any governments financial assistance have been channelled to housing development in the town.

The town is currently facing housing shortages as evidenced by the large number of houses in the poor quality category and high rates of occupancy. It was also found that a majority of the housing stock is under private ownership. The inability and in some cases unwillingness of the institution and the local authority to construct enough houses for their workers has intensified the housing shortages especially in terms of the crowding factor.

Infrastructural facilities are also not adequate. The water reticulation system and electricity supply is not serving all the urban dweller while pit latrines are the predominant sanitation facility. When planning for the future housing needs, all these need to be looked into.



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## CHAPTER FOUR

### 4.0.0 FUTURE HOUSING NEEDS IN MUMIAS

#### 4.1.0 INTRODUCTION

The future housing needs are the number of housing units that will be required to adequately provide for a safe and decent shelter for the Mumias urban dwellers up to the year 2008. The calculation of the future housing needs is based on the specific factors which contribute to the future housing requirements as identified in chapter two and three.

The future housing needs in the study area will emanate from four main sources viz: the anticipated new household formation due to population increase; elimination of overcrowding in the existing units; replacement of dwelling units which became unfit for habitable due to depreciation and obsolescence over the years; and provision of adequate housing for those who presently live in sub-standard unfit dwellings.

The projections of these needs are based on the assumption that new housing units are required to cater for new households, replace depreciating units, meeting the current inadequacies and bringing the occupancy rates to the desired level of 2.5 persons per room.

The housing needs in Mumias will be calculated in two categories. In the first, will be those housing needs which arise from the

present housing inadequacies and shortfalls and in the second will be those needs that will arise due to increasing population and future housing decay.

#### 4.2.0 FUTURE NEEDS DUE TO CURRENT SHORTFALL

The current shortfall in housing needs in the town as evidenced by overcrowding and the existence of slums, squatter settlements and dilapidated housing units which are by all standards 'unfit', forms of substantial proportion of the total future needs. As Kokus (1974) has shown in his model, such needs can be established by evaluating the quality of the existing stock and the level of overcrowding as done in chapter three. In estimating these needs therefore those arising from unacceptable dwelling units and those from overcrowding will be calculated separately.

#### 4.2.1 NEEDS DUE TO UNACCEPTABLE DWELLING UNITS

The analysis in chapter three has shown that 22 percent of the total housing units, this is 760 units are 'unfit' for human habitation. The unacceptability of these units is because they lack most of the essential infrastructural facilities, they are structurally dilapidated and the general environment very poor. As the town continues to grow, these conditions are expected to worsen unless the present units are replaced and the future development of such conditions controlled.

Since the condition of the unacceptable units is beyond repair the 760 units require replacement, but the units that are needed to adequately house the people living in them will be more because the present units are overcrowded. In calculating the number of units that will be required to replace the 760 'unfit' units, the population living in them should be used. The required replacement is given by the expression:

$$E = P_n / S$$

where  $P_n$  is the population presently living in the unfit dwellings which is 4074 people and  $S$  is the average household which is 4.9, while  $E$  is the units required. The housing needs which arise from this is therefore approximately 831 units.

In the near future, Mumias does not expect to have such a large urban renewal programme that will eradicate all slums and squatter settlements in Shibale and Mjini and other dilapidated housing structure in the town. The absence of immediate plans to tackle the problem is then expected to worsen the housing needs situation in future. It is expected that as more people migrate into the town in search of job opportunities, they will continue living in these unacceptable dwelling and many more will be constructed. This condition will continue because as the present needs remain unsatisfied and new are created, the rents in the few acceptable units will rise, making it unaffordable to those in the low-income bracket and new job seekers from the rural areas.

However, if the present unacceptable units are eradicated and more new units are supplied in future as the needs arise, then the future housing problem would have been solved.

#### 4.2.2 OVERCROWDING IN ACCEPTABLE UNITS

Overcrowding in Mumias is not only a common phenomenon in the slum and squatter settlements which are mostly inhabited by low-income earners but also occurs in the acceptable dwelling units due to the present housing shortage. As shown in chapter three, the occupancy rate of some of the most acceptable units in the Nucleus Estate is as high as 4 persons per room. There is therefore need to reduce the occupancy rate in the town from the present average of 2.7 persons per room to the nationally set standard of 2.5 persons per room.

Within the 2732 acceptable dwelling units in the study area, it has been found that, while these units have only 5608 habitable rooms, they accomodate 15380 persons. The occupancy rate in these units is thus 2.74 persons per room. In order for the town to achieve the long term national housing objective of a decent and safe adequate housing, measures must be taken to reduce the occupancy levels.

In order to reduce the present room occupation densities to the desired levels, additional housing units are required and are calculated using the formular:

$$E = \frac{Pa - R \times d}{S}$$

Since the population living in the acceptable units (Pa) is 15380, the total number of rooms (R) is 5608, the desired density (d) is 2.5 and the average household size is 4.9, then a total of 278 units will be required.

The overcrowding phenomenon if unchecked by the construction of more housing, it is expected that it will worsen. As population ~~increases~~ over the years, households will continue sharing housing units. Evidence from the Mumias Sugar Company Nucleus estate housing has shown that as the company expands its operations and employs more workers, the extra workers are forced to share houses with others which were originally meant to be for only a single worker with his family. This leads to overcrowding.

Unacceptable dwelling units and the overcrowding factor in the study area therefore makes the total housing needs in the town due to present shortfalls to be 1109 units. It is expected that if these units are constructed and yearly additions provided to cater for the net increase in population and future housing depreciations as discussed below, the housing problem could be overcome.

#### 4.3.0 NEED DUE TO POPULATION GROWTH AND HOUSING DEPRECIATION

Apart from the housing needs that will be arising from the present accumulated shortfalls, a large proportion of the future needs is expected to emanate from new household formation due to both natural increase in population and population migrations to

to the town. In addition to this, the depreciation of the existing stock will also contribute to these future needs.

This section addresses the factors that will influence the population growth and how the population growth trends and the rate of housing depreciation will affect the future housing needs.

#### 4.3.1 : POPULATION GROWTH AND NEW HOUSEHOLD FORMATION

During the field survey, the population of urban Mumias was estimated to be 19454 persons, with a total of about 4229 households. The population and household numbers are expected to increase in the future due to a number of factors:

##### 1) Expansion of Mumias Sugar Industry:

The Mumias Sugar Industry which was established in 1972 is the major employer in the town as shown in chapter three. The Sugar Company has plans of expanding its production capacity from the present 217,700 tonnes of Sugar per year to 450,000 tonnes. This expansion is expected to increase its workforce from the present 8500 workers to about 14,400 employees both permanent and contract workers.

The Mumias Sugar Company also intends in the near future in conjunction with the Mumias Outgrower Company to open a commercial bank. The expansion of the activities of the Mumias Sugar industry are therefore expected to attract more job seekers

into the town as well as more investments. All these will consequently lead to population increase that will increase the future housing needs.

2) Growth of the Commercial and Small-scale Industrial Sectors:

The second factor that will bring about increased population in the town due to immigration is the growth of the commercial and small scale industrial sub-sectors of the urban economy. In chapter two section 2.3.2 it has been shown that these sectors provide employment to about 12 percent of the labourforce in gainfull employment and in section 2.3.3 it has been shown that the growth of these sectors have been fairly rapid. It is therefore expected that as the town continues to urbanize more investment in the commercial and industrial sector will be done. This will create more employment opportunities and hence a population pull factor towards the town.

3) Increased life expectancy

Life expectancy rates in urban areas in Kenya are generally higher than in rural areas. This is because of the better health facilities that are available in towns. Mumias has well established medical facilities such as the Mill Hill Mission Hospital and the Mumias Sugar Company health Centre. It is expected that as the factors affected the standard of living in the town such as income levels get improved by increased job opportunities, the life expectancy rate will increase. This will lead to the natural rate of population increase.



Although it has been argued that increased life expectancy in any area is normally accompanied by a reduction in family sizes, this may not be very significant in Mumias during the planning period. This is because presently, a majority of the household (82 percent of interviewed households) are not and do not intend to practice any type of family planning method.

The three factors explained above are the three main factors which will lead to ~~continued~~ population growth. In order to accurately estimate the future housing needs that will arise from population growth, the rate of population increase must be known. The establishment of a precise population growth rate is not easy, since it requires the analysis of demographic trends over a period of time. For purposes of estimating the future needs, three population growth rates will be used namely high, moderate and low growth rates.

The high population growth rate is taken to be 7.1 percent per annum as estimated in the Kakamega District plan to be the rate of population growth for the town. In using this rate, it is assumed that all the growth potentials of the town will be fully realised and all the factors affecting population growth as discussed above will be fully operational.

The low growth rate is taken to be the average National population growth rate of 3.8 percent per annum. Although it is unrealistic for an urban centre like Mumias to have such a population growth rate, this rate is used so as to show that

even at its worst rate of growth, how will the future housing needs be like.

The moderate population growth rate is the average between the two extreme, which is 5.45 percent per annum. The table below shows the population growth projections using all these rates in five year intervals to the year 2008.

TABLE 4.1 POPULATION PROJECTIONS TO THE YEAR 2008

| YEAR | POPULATION PROJECTIONS |                  |            |
|------|------------------------|------------------|------------|
|      | HIGH 7.1%              | MODERATE (5.45%) | LOW (3.8%) |
| 1988 | 19454                  | 19454            | 19454      |
| 1993 | 27413                  | 25365            | 23442      |
| 1998 | 38628                  | 33073            | 28248      |
| 2003 | 54431                  | 43123            | 34039      |
| 2008 | 76700                  | 56227            | 41017      |

With these population projections we can now calculate the future housing needs arising from population growth. The equator used to calculate this is given as:-

$$E = \frac{P_t}{S} - H$$

Where,

E = Housing needs due to population growth

P<sub>t</sub> = Estimated population in a given period (t).

S = Average household size

H = Number of households at the base year.

The basic assumption here is that every new households will require a dwelling unit and that every extra addition of people equal to the average household size will make up a new household.

Given that the average household size in Mumias is 4.9 and there are approximately 4229 households, then the future housing needs due to population growth are shown in the table below:

TABLE 4.2 HOUSING NEEDS DUE TO POPULATION GROWTH 1988-2008

| YEARS  | POPULATION AND HOUSING NEEDS PROJECTIONS |              |                    |              |                 |              |
|--------|------------------------------------------|--------------|--------------------|--------------|-----------------|--------------|
|        | HIGH PROJECTIONS                         |              | MEDIUM PROJECTIONS |              | LOW PROJECTIONS |              |
|        | POP.                                     | NO. OF UNITS | POP.               | NO. OF UNITS | POP.            | NO. OF UNITS |
| 1988   | 19454                                    | 0            | 19454              | 0            | 19454           | 0            |
| 1993   | 27413                                    | 1365         | 25365              | 948          | 23442           | 555          |
| 1998   | 38628                                    | 2289         | 33073              | 1573         | 28248           | 981          |
| 2003   | 54431                                    | 3225         | 43123              | 2051         | 34039           | 1182         |
| 2008   | 76700                                    | 4545         | 56227              | 2674         | 41017           | 1424         |
| TOTALS | -                                        | 11424        | -                  | 7246         | -               | 4142         |

The high population growth rate of 7.1 percent shows that by the year 2008 Mumias will require 11424 extra housing units to house the new households. The moderate and low growth rate give a total demand of 7246 and 4142 housing units respectively. This

therefore shows that even at its worst in terms of the towns growth and development, more than 4100 units will be required.

Having seen the magnitude of housing needs from population growth over the years to the year 2008, let us now see how housing depreciation and obsolescence will contribute to future housing needs in Mumias.

#### 4.3.2. HOUSING DEPRECIATION AND OBSOLESCENCE

The rate of wear and tear, that is depreciation, is determined by a number of factors. In Mumias three factors seems to be the most significant. These are the type of building material used for the construction of the dwelling unit, the level of housing maintenance and the age of the dwellings.

Depending on the type of building materials used, the housing units in Mumias can be categorised into two; permanent and semi-permanent. For purposes of this study, a semi permanent dwelling is taken to mean those dwellings which have been constructed using materials such as mud and wattle and grass thatch or any other materials which are not very durable. The average life span of such type of units has been estimated to be 30 years in Mumias. On the other hand, permanent dwellings is loosely taken to stand for buildings constructed using permanent and durable materials such as permanent and durable materials such a concrete block, bricks, stone, stabilised sand brick, tiles, G.C.I., asbestos etc. Such type of building have been estimated

to have an average life span of over 80 years. The life expectancy of these two categories of housing is different because, the rates of depreciation are higher in the semi-permanent category than in the permanent one.

The age of a building is an important factor in housing depreciation and obsolescence because rates of depreciation increase with age. The last factor, this is the maintenance and repairs are crucial because high levels of maintenance leads to a dwelling unit to maintain its habitable condition for a longer period. These factors will affect the future housing needs in Mumias as discussed in chapter three.

In chapter three, it has been established from the ages of the buildings that semi-permanent building in Mumias, taking into consideration the present maintenance levels have a life expectancy of 30 years. These type of structures therefore depreciate at a rate of approximately 3.3 percent per year so that by the 30th year it is totally obsolete. Permanent structures on the other hand are expected to continue being habitable for about 80 years after which they become obsolete. Their annual depreciation rate is therefore estimated to be 1.25 percent. These rates will be used to calculate the number of housing that will have to be built over the planning period so as to replace the depreciated and obsolete units.

In Mumias, there are 726 dwelling units that fall under the semi-permanent category although presently in an acceptable habitable condition and there are 2006 units which are permanent. In estimating the future housing needs that will arise from replacement of the depreciating and obsolete dwellings in the twenty year period, a function formulated by the Department of Housing in the ministry of housing in 1983 is used. The function is as given below:

$$E(t) = B(X_1)t + A(X_2)t$$

where;

B and A are the depreciation rates of semi permanent and permanent dwelling units respectively.

$X_1$  and  $X_2$  are the number of semi-permanent and permanent units in the study area during the base year respectively and t is the time duration under consideration in years.

The Housing Departments (1983) equation is used because it is more suitable than the equation in the UN Model (which is used for this study) which expresses this component of housing need. The UNs equation which is given as:

$$E_8(t) = (VU + U_3 + U_4 + U_5 + U_6)t$$

with the terms as defined in chapter one page 35, requires more information which was not obtained during the study. It requires us to know the number of units that will be demolished due to urban redevelopment, those lost due to disaster and those which will be converted to non-residential uses. Therefore, the equation of the Housing Department is considered to be more suitable

because it fits into the data we have. When we apply it, we find that the number of dwelling required are:

$$\text{Et } 0.033(726)20 + 0.0125(2006)20$$

980 units.

Of the 980 dwelling units, approximately 499 will be required to replace semi-permanent structures and approximately 501 to replace permanent structures.

The trends in Mumias indicate that the number of new semi permanent structures which are added to the present housing stock is gradually increasing. These trends are unfavourable for the future housing needs because more units will be required in future since the rate of depreciation of semi-permanent structures is so high considering that their rate of depreciation is high.

#### 4.4.0 OTHER SOURCES OF HOUSING NEEDS

There are other factors which will contribute to the future housing needs in Mumias but whose magnitude of influence could not be established in the study area. These other sources of future housing needs are:

##### a) Conversions to non-residential purposes

It is expected that in the 20 year period, some residential dwellings will be converted into non-residential purposes.

Generally, it is expected that these conversions are high in the towns where the commercial centre has residential dwellings. As

the commercial activities expands, the residential buildings will be converted to commercial buildings.

This is actually how the situation is in Mumias, where the 'Old town' commercial centre has residential units. The number of such conversions could not be estimated in the 20 year period because past trends could not be established.

b) Demolitions of Residential units for Urban Development

In Mumias, a number of residential units are expected to be demolished in the twenty years period so as to provide space for other urban developments. It is expected that as the town continues to grow, new development such as road construction, and more commercial and industrial enterprises will come up. Some of these development will be located in areas which are presently occupied by residential houses. Such houses will therefore have to be removed. Since the magnitude of such new urban developments can not be estimated, especially where they will be located, then the housing needs from this source could not be established.

c) Loss of Residential Units due to disasters

Disasters such as fires and floods may also occur in the town and cause loss of residential houses. Past records of fire and flooding disasters, on whose basis, trends could be established for the future, are not available. It is therefore impossible for our study to estimate the number of residential units that will be lost due to these disasters.



#### 4.5.0 SUMMARY

The future housing need in Mumias up to the year 2008 are enormous. The present accumulated housing shortage accounts for 1109 units, depreciation and obsolescence accounts for 980 units while the needs due to population growth depending on the rate of population increase whether high, medium or low accounts for 11424 units 7246 units and 4142 units respectively. If the high population growth rate of 7.1 percent is taken, the total housing needs will be 13512 units. If the moderate rate of 5.45 percent is considered the total is 9335 while the low rate of 3.8 percent gives a total of 6231 units that will be needed in future. The table below gives a summary of the total future housing needs.

TABLE 4.3 SUMMARY OF TOTAL HOUSING UPTO THE YEAR 2008

| HOUSING NEEDY<br>BY SOURCE | FUTURE HOUSING NEEDS            |               |                                   |               |                                |               |
|----------------------------|---------------------------------|---------------|-----------------------------------|---------------|--------------------------------|---------------|
|                            | HIGH PROJEC-<br>TIONS<br>(2.1%) |               | MEDIUM PROJEC-<br>TIONS<br>5.45%) |               | LOW PROJEC-<br>TIONS<br>(3.8%) |               |
|                            | NO.OF<br>UNITS                  | % OF<br>TOTAL | NO.OF<br>UNITS                    | % OF<br>TOTAL | NO.OF<br>UNITS                 | % OF<br>TOTAL |
| <u>ACCUMULATED NEEDS</u>   | 1109                            | 8.2           | 1109                              | 11.9          | 1109                           | 17.8          |
| 1. UNACCEPTABLE<br>UNITS   | 831                             | 6.1           | 831                               | 8.9           | 831                            | 13.3          |
| 2. OVERCROWDING            | 278                             | 2.1           | 278                               | 3.0           | 278                            | 4.5           |
| FUTURE NEEDS               | 12404                           | 91.8          | 8226                              | 88.1          | 5122                           | 82.2          |
| 1. NEW HOUSE-<br>HOLDS     | 11424                           | 84.5          | 7246                              | 77.6          | 4142                           | 66.5          |
| 2. DEPRECIATION            | 980                             | 7.3           | 980                               | 10.5          | 980                            | 15.7          |
| TOTAL                      | 13513                           | 100           | 9335                              | 100           | 6231                           | 100           |

In order to satisfy the needs by 2008 it is expected that an annual supply of 676 units, 467 units or 312 units depending on the rate of population should be built.

Since housing needs have a component of the infrastructural facilities which are complementary to the physical structures when facilities such as water supply, sewerage system, schools, hospitals, recreational facilities and etc. need to be expanded and increased. The volume of capital investment to bring the housing situation to a desired level both quantitatively and qualitatively is enormous. It therefore requires proper planning and formulation of programmes.

With the future housing needs established in this chapter, the next chapter, chapter five deals with the planning for future housing needs.

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## CHAPTER FIVE

### 5.0.0 PLANNING FOR FUTURE HOUSING NEEDS

#### 5.1.0 PLANNING PROBLEMS AND ISSUES

The provision of future housing needs and the related physical facilities in Urban centres must be seen within the context of the sources from which the needs are emanating and the related planning problems and issues. The analysis in the previous chapters have shown that the housing problem in Mumias is multifaceted. On one dimension, the problem can be seen as emanating from the rapid urbanization experienced in the town since 1972. On the other dimensions however the problem can be seen in terms of lack of governments and the local authorities commitment in housing construction and providing adequate assistance to the low income residents. The other factors are lack of financial and other resources from within that are required for housing development and the general lack of specific and appropriate policy programmes necessary to guide housing developments.

The establishment of the Mumias Sugar Industry in 1972 did revitalise the growth of the town that had slowly dwindled since the late 19th century. The coming of the industry, found Mumias with better job opportunities to offer. These job opportunities attracted immigrants who came in search of employment. These experiences in Mumias are also common in other Urban Centres in Kenya, where large-scale industrial establishments were started. In Eldoret town, Mbogwa (1978) found out that the siting of

more industrial enterprises in the town as from 1970, led to the flocking of more job seekers into the town. The experience of the centres that grew up due to industrial establishment is that housing needs increased and in cases where they were not provided for, unplanned settlements grew up spontaneously. This is actually what has happened in Mumias. The coming of Mumias Sugar Industry has been followed by proliferation of slums and squatter settlements in Shibale and Lukoye as discussed in chapters two and three.

Industrial growth has been generally associated with increasing housing needs and the ultimate construction of sub-standard dwellings in squatter settlements where the increased needs are not provided for. This phenomenon leads us to the first planning problems that we must address. It was found that in Mumias about 831 units will require replacement because they are by all standards unfit for human habitation. The issue however goes beyond the mere replacement, it requires further attention as to how slum proliferation can be curtailed and how adequate housing for those who will be migrating to the town in search of better employment opportunities can be provided for.

It has been established in this study that the growth in commercial and industrial activities in the town are expected to attract more workers, and from this and the natural increase in population, it is estimated that the population of the town will be about 76,700 taking the high projections or 41,016 when the low growth rates are used. Such a rapid population increase

in twenty years will therefore require more comprehensive housing programmes if adequate decent housing is to be provided.

In the history of Mumias development to its present size we have also seen how the government has been less committed in solving the housing problem in the town. We found out that the government declined to undertake the responsibility of providing housing units and community facilities for the Mumias Sugar Company workers who the Company could not accomodate. Although the government had earlier agreed to the proposal that it should provide housing for the non-managerial and supervisory staff of the company (Mumias interim report 1969), it later changed its stand. The lack of committment of the government in providing housing in small urban centres has also been experienced in other small industrial towns like Webuye. In Webuye, when the Pan Paper Mill was established, the government pointed out that she could only provide the infrastructure while the company had to construct enough houses for its workers (Adolwa: 1985).

Housing as a public good, requires that the government fully participates in providing it. Government assistance is required to aid the local authority and other agencies within the town so as adequate housing for both the present and future needs can be developed. If the government is less committed, then such a situation becomes a critical issue in planning for the future housing needs, especially in the small urban centres where the requirement is high and resources limited. There is therefore need for the government to be more involved in housing development. The

government involvement can be enhanced if it strictly adheres to its housing policy objectives. The government is expected that it can fully participate in housing development through provision of loans to local authorities, financial assistance to companies which undertake employee housing project and its direct involvement in housing construction programmes. If the government is committed to carry out these programmes then some of the present and future housing problems in the small urban centres will be solved.

The development of housing is expected, apart from government assistance to be carried out using local resources. These resources range from financial, land, to building materials. The lack of these resources have hindered the construction of housing, especially, for the low income urban inhabitants. Local authorities in Kenya have demonstrated that they have limited finances and land that can be directed to housing development. In the case of Mumias, it was found that the town is not even able to adequately finance recurrent expenditures while on the other hand only 208 hectares of land, which already accommodates the town centre, is at the full control of the council. The implications from these limitations to the planning for future housing needs is that the council will not only be unable to finance the construction of its housing but also attract private housing developers to be provided with serviced plots.

The housing policy in Kenya requires that the local authorities should finance housing development in their areas

and also to acquire land that can be distributed to private developers. In planning for the future housing needs therefore, the possibilities of making local authorities financially able and how they can acquire more land so as to encourage the private sector to participate in building of residential units should be explored.

The problem of scarce financial resources for housing is not a condition of the local authority alone. It has been observed that a majority of the urban dwellers in Kenya are low income earners whose ability to construct houses of their own are limited. In 1984, Jorgensen found out that for a family to comfortably construct a house in an urban centre, it is required that the monthly income is not less than Ksh. 4,000.00 per month. He argues that for those earning less than this unless financial assistance is provided to them they will be unable to build decent shelters for themselves (Jorgensen: 1984)

In Mumias, the majority of the urban dwellers fall within the low income bracket, with monthly incomes of less than Ksh. 2,400.00. The problem here is that although the incomes levels are expected to rise in future (chapter two), they will still be inadequate for financing a decent dwelling unit. This directly calls for looking for ways and means of helping them in solving their housing problems. Both local and outside financial sources that can be channelled to low-income housing development must be identified.



The analysis on building materials in Mumias show that the town does not have adequate supplies of materials such as iron sheets, timber, cement and concrete blocks have to be bought from Bungoma, Eldoret or even Kisumu. The locally available material like clay bricks are on the other hand still produced using traditional methods. This situation has lead into not only the extensive use of mud and wattle (42.9 percent) as the material for building walls but also increasing the cost of housing construction. The lack of locally available building materials in urban areas has been considered as ~~one~~ of the factors that have hindered housing development. In the study area, private housing developers have stated that if cheap local building materials can be availed to them within the town, housing production could increase drastically.

In addition to the problems and issues that will affect the planning for the future housing development mentioned above, the issue of appropriate housing policies and programmes is also important. Mbwagwa (1978) has noted that unless urban centres have specific policies and programmes to guide housing development, the towns will continue to accommodate most of their inhabitants in unplanned and slum settlements. The problem found in Mumias in this regard is that the town council does not have proper development control measures. This has lead to proliferation of Squatter settlements and construction of dwellings which do not adhere to standards. The implication of inadequate development control and adherence to building standards to the provision of future housing ~~needs~~ in that more sub-standard dwelling will

be put up and this will consequently lead to severe problems of urban renewal and upgrading.

The other policy issue that has not been properly addressed in most urban centres and its neglect has led to worsening the future housing needs concerns housing maintenance. Syagga (1978) has argued that most local authorities in Kenya are concerned with the provision of new houses, but what happens to them once they are built concerns them less. What he points out is that the preservation of the existing stock and those constructed in future should concern the local authorities as much as their construction. If proper maintenance measures are not instituted more houses will be lost through depreciation and this will worsen the housing shortage and unnecessarily increase the future needs.

In the study we have found out that about 980 dwelling units from the present stock will require replacement due to depreciation. Unless measures are taken to alleviate the problem of poor maintenance of the housing stock, the new dwelling that will be built to satisfy the future need and even the existing stock will rapidly deteriorate. Such rapid deteriorations as earlier mentioned would increase the future housing needs.

In summary, the planning for future housing needs should address to the following identified problems:

- (i) the proliferation of squatter settlements and construction of sub-standard dwellings;
- (ii) involvement of the government and the local authority in housing construction.
- (iii) Lack of resources;
- (iv) Inadequate infrastructure facilities necessary in facilitating housing development and;
- (v) lack of appropriate policies in housing construction and maintenance.

In view of these problems, a number of policy and programme recommendation are made. These are aimed at addressing the problems above and guide the planning for the future housing needs.

#### 5.2.0 PROGRAMMES AND POLICY RECOMMENDATIONS

In spelling out the policy and programme recommendation that are important for the provision for future housing needs, the main guiding principle has been the National Housing policy. The National housing policy objective aims at providing decent housing for every household in the urban centres. The decent dwelling units are not only in terms of the structural physical units and the contiguous facilities they provide but also the entire supportive and facilitative infrastructure.

The recommendations addresses all the these issues in relation to the problems identified in the study. The

recommendations are given in four main sections viz: Housing development programmes; provision of infrastructure; resources for housing development and the general policy issues.

#### 5.2.1. HOUSING DEVELOPMENT PROGRAMMES

Planning for the provision of adequate housing in a town like Mumias, where the housing needs arise from a range of factors requires the identification of more than one housing programmes. Each of the programmes should be able to adequately solve a specific or more than one specific type of housing needs. The programmes that are capable of realizing the future housing need are upgrading, site and service schemes, Tenant purchase, Institutional housing and encouragement of individual housing development.

#### UPGRADING AND RENEWAL PROGRAMMES

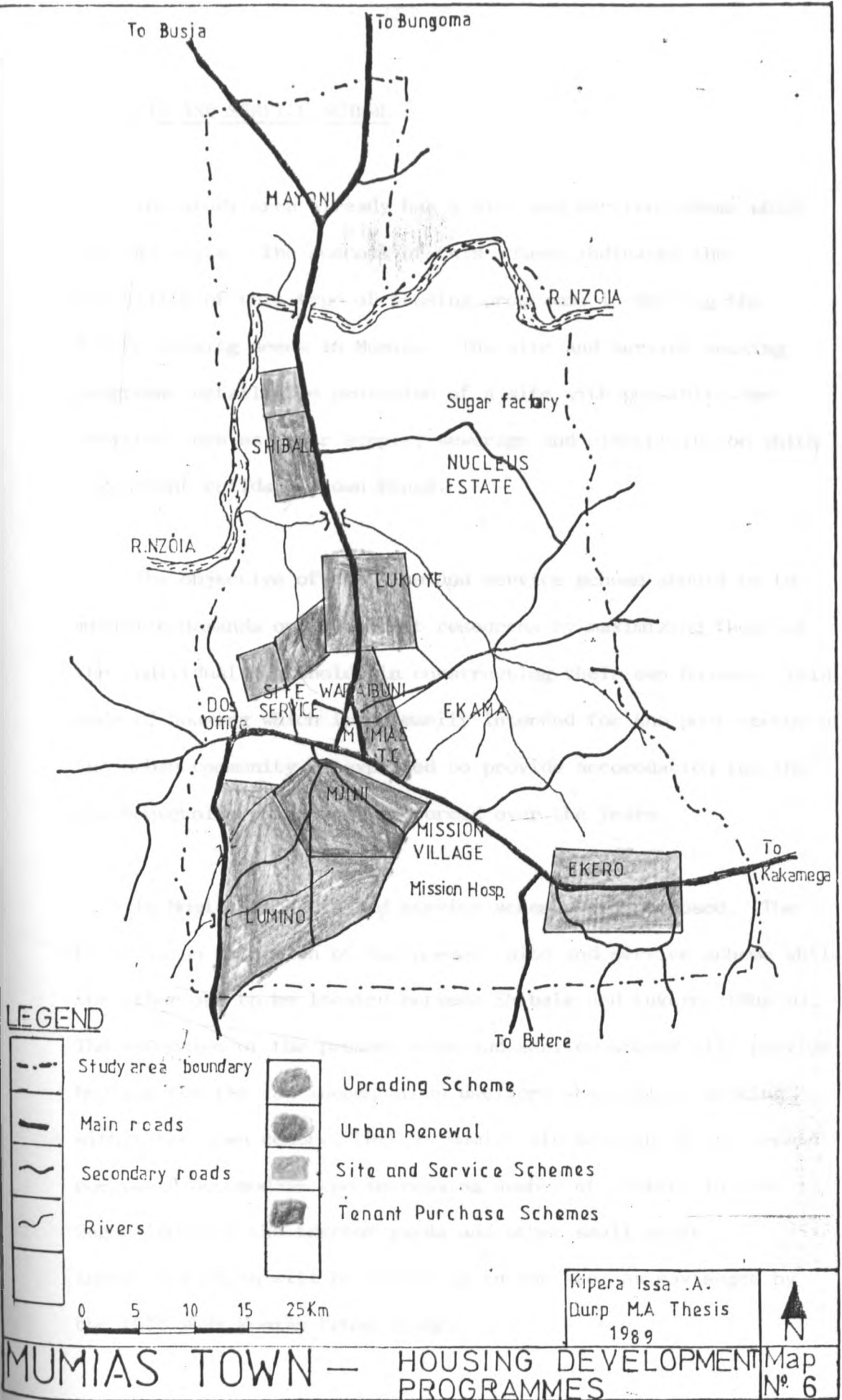
Upgrading is used here in its comprehensive sense to embrace the improvement of service and social infrastructure in existing settlements and also the consequential improvement of the buildings themselves. On the other hand, renewal is taken as the complete replacement of the housing units which are presently uninhabitable. In Mumias we have seen that one of the factors that contributes to the high future housing needs is the poor quality of the present housing stock. The upgrading and renewal programmes should therefore be seen in light of solving the qualitative problem of housing needs.

Having seen that the majority of poor quality housing both in terms of the physical units and infrastructure provision is found in Shibale, Lukoye, Ekeru, Mjini and Lumino; then these are the areas where the programmes should be undertaken. While in Shibale and Mjini the clearing and replacement of unacceptable units is necessary, the other areas, Lumino, Lukoye and Ekeru, just need an upgrading scheme where water sanitation and sewerage, roads and lighting will be provided and some improvement made on the existing housing stock (Map 6).

The main Basic principles underlying the upgrading and renewal programmes in meeting the future housing needs in Mumias should be:

- (i) Optimization of the use of existing housing and infrastructure, this is mainly in situations where the housing structure and physical infrastructure can be rehabilitated to an acceptable level.
- (ii) Provision of services that the government and people can afford.
- (iii) Provision of assistance and incentives for the people in the identified programme areas to improve their own housing through their own efforts over time. This is specifically in the case of upgrading.

Through these programmes therefore the town would be able to solve the housing needs that emanate from unacceptable dwelling units.



## 2) SITE AND SERVICE SCHEME

The study area already has a site and service scheme which has 144 units. The success of this scheme indicates the capability of this type of housing programme in meeting the future housing needs in Mumias. The site and service housing programme entails the provision of a site with possibly some services such as water supply, sewerage and electricity on which a resident builds his own house.

The objective of the site and service scheme should be to minimize demands on government resources by maximizing those of the individual households in constructing their own houses. This mode of housing which is primarily intended for the poor sector of the urban community is expected to provide accommodation for the new households which will be formed over the years.

In Mumias two site and service schemes are proposed. The first is an extension of the present site and service scheme while the other one to be located between Shibale and Lukoye. (Map 6). The extension of the present site and service scheme will provide housing for the low income urban dwellers who will be working within the town centre, this is Mumias old town while the second one would accommodate the increasing number of workers in the Sugar industry the tractor yards and other small scale industries which will be coming up in the area as envisaged by the 1988 DURP Mumias Urban Study,

In implementing the site and service schemes, it is expected that the National Housing Corporation in conjunction with the Town Council will provide sites that are serviced with water, sewerage system, surface water drainage and accessibility. Since this programme is aimed at the poor, it is also expected that credit assistance will be provided to supplement the financial resources of the people.

### 3) TENANT PURCHASE SCHEMES

As housing needs continue to grow it will become necessary for tenant purchase housing programmes to be planned for the town. In this respect, it is expected that housing finance companies and the local outgrowers company will construct middle and high income residential houses which they will put in sale. This programme is aimed at increasing the home ownership of decent housing units for those who cannot raise enough finances to build their own houses at once.

In order to encourage the development of the tenant purchase housing scheme, the town council should acquire land that it will provide to the prospective housing investors. The land should also be serviced with water, electricity and sewerage so that the cost of developing the housing units can be reduced. It should however be noted that the tenant purchase housing programme is a long term programme. This is because, at the present level of development in the town such a programme may not be viable.



#### 4) INSTITUTIONAL HOUSING

It has been found that Institutions such as schools, the Mission hospital and even companies like the Mumias Sugar Company, the Bank and Post Office do not have adequate housing for their staff. This has led to putting pressure on the existing few private rental housing. As these institutions continue to expand and many more coming up, the solution to their workers housing can only be found in the construction of housing by these institutions themselves.

For public institutions such as schools it is expected that the community through harambee will contribute towards the construction of dwellings of the teachers. In the case of institutions which are self-supporting in terms of financial resources like the Mumias Sugar Company, it is however expected that they will finance their own housing development.

The Mumias town council as an institution is also expected to participate in housing construction both for its workers and rental purposes. Although the present financial resource base of the council is still meagre, it is expected that it will in future be able to collect enough revenue so as to undertake the future needs housing programmes.

#### 5) INDIVIDUAL HOUSING DEVELOPMENT

Apart from the programmes outlined above, there is also need to encourage private individual, entrepreneurs to undertake

housing development. For those who already own housing but which are in sub-standard state, incentives should be geared towards rehabilitating them. On the other hand for those who do not have, the programme should entail encouraging them to construct.

The development of more individuals homes for those who can afford will relieve the pressure on the rental housing and hence creation of more room for those without houses. It is expected that the local authority and the government would aid such individual developers by providing them with services in their plot and also technical assistance where needed.

#### 5.2.2 PROVISION OF INFRASTRUCTURE

The development of adequate housing through the programmes spelt above will largely depend on the availability of infrastructural facilities and services. The housing related infrastructure that must properly be planned for so as to stimulate housing development include land, water, electricity, sewerage and sanitation system, and an urban road system. Land is included under infrastructure because of the key role which it plays in housing. It is on land that all developments are done and therefore its availability or scarcity as a physical infrastructure is very crucial.

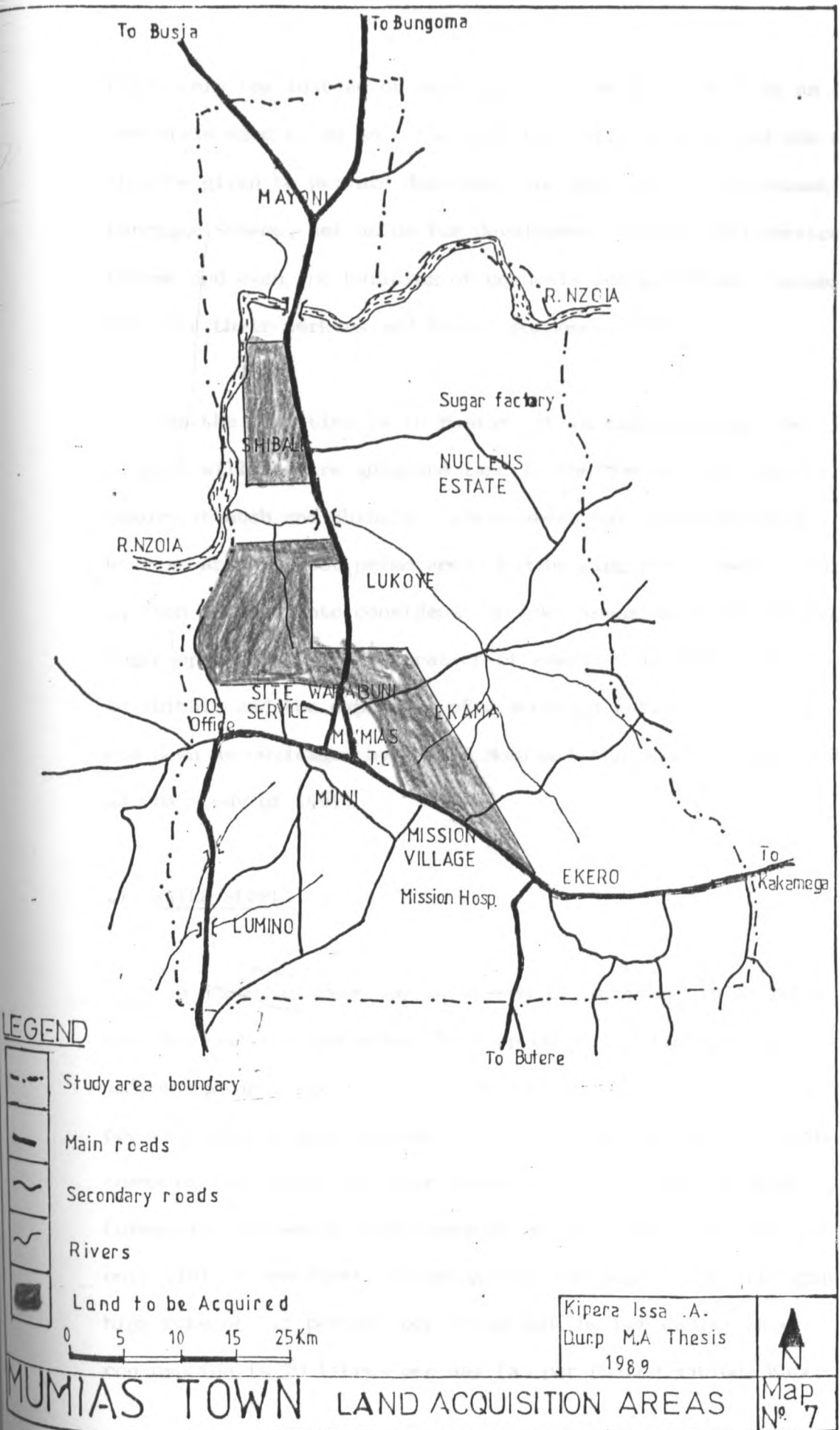
##### 1) LAND

Availability of land for urban development can be an important determinant in housing development. Luigi (1972) has argued that

"land availability can present a special problem in urbanization. More often than not, the land required for efficient urban development (such as in the housing sector) is not accurately estimated in advance of need and hence land assembly and acquisition for such purpose(s) became complex and a very expensive process" (p. 40). The problem that land might cause in the future housing needs development mainly result from two aspects; land tenure system and its price.

In Mumias we have found that 80 percent of the urban land is under private ownership and the prices have already risen to as high as Ksh. 50,000 per acre. Although private land ownership and high values can be conducive for private housing development in that the private owner can use his land title to obtain a loan to construct a house on the same parcel of land, it can also hinder housing development. Private land ownership coupled with high values can be a constraint to the development of public and institutions housing especially for the low income earners if the agencies who want to undertake the development do not have land of their own.

In Mumias, it is required that the government and the town council should acquire land so as to expand the present 'land Bank'. The land so acquired should then be allocated to potential housing developers at a minimal rent. The local authority should also take it upon itself to service the plots so as to encourage the development of housing on them. Infact, it is proposed that the council should start acquiring the land now while prices are



relatively low instead of waiting up a time when there is an immediate need to do so. The land that will be acquired now will then be given to private developes who want to develop Tenant Purchase Scheme, set aside for development of site and service scheme and even the building of councils and government houses both for their workers and rental purposes. (Map 7).

As the situation is in Mumias, it is expected that the Council will acquire adequate land in the Mumias 'old town' - Lukoye stretch and Shibale. These areas have been proposed because are the most prime areas for housing development. This is when we take into consideration the expansion of the Mumias Sugar operations. Concentration of small-scale industries in Shibale and the expansion of commercial activities in the old town as envisaged by a DURP Mumias Urban Study of 1988 and an ODA Study of 1981.

## 2) WATER SUPPLY

An adequate water supply system is important in an urban area because its one among the supportive and faciliative infrastructures that are required in housing development. The present water supply system is not adequate for the town both in terms of the volume of water produced and its area coverage. Currently, the water supply system produces  $307,700\text{m}^3$  and has only 1491 connections. Assuming that the population will grow at the high rate of 7.1 percent per annum and the per capita water consumption is 70 litres per day (as per United Nations Water

Consumption Standards), then 536, 900m<sup>3</sup> will be required. When we assume that each household will require an individual water connection then approximately 13,500 connections for residential houses alone will be needed in the next twenty years.

The future requirements of water supply as a supportive infrastructure for housing is great. This therefore requires immediate attention. It is expected that the town council in collaboration with the Ministry of Water Development will come up with plans of meeting the target by the year 2008. The Mumias Sugar Company can give a helping hand in the implementation of the water programmes.

Considering that the investment required to undertake such type of water supply programme is massive, an element of "cost-sharing" is proposed. In 'cost-sharing' the council and Ministry of water will be expected to make investments towards the expansion of the water intake point and the distribution of the main water pipe while the individual household will meet the costs of connections to their houses. For the case of low income residential areas however, it is expected that it will be the sole responsibility of the council to supply water, even if only to communal water points level.

### 3) SANITATION AND SEWAGE DISPOSAL

In addition to clean water supplies, sanitation and the proper disposal of human and household wastes is essential to the

well being of the population and the maintenance of a good physical environment. The basic objective of providing proper sanitation facilities is to ensure that human waste is removed from the immediate household environment and converted into an acceptable form without risk to the health of the household or the community in general.

The main constraint that Mumias town will face in providing adequate sanitation and sewerage sanitation system in the short term is the dispersed nature of its development. In order to overcome this constraint it is proposed that in the short-term, before the town development becomes a continuous urban Mosaic, the town should have three different sewer systems. The first, should serve Ekeru, Mission Village, Mjini, Lumino the town centre, the site and service scheme and Lukoye. This system should be combined to the existing sewerage system at the site and service scheme. The second sewerage system should incorporate the sewer reticulation system at the Nucleus estate and extended to serve Shibale. The third, sewerage system should be planned to serve Mayoni, incorporating the sewer system serving the Mumias Sugar company houses in the area. In future however these systems will have to be combined to a single unit when it becomes viable.

The town council will also be required to undertake refuse collection in future. As urbanization continues it is expected that the volume and type of household and industrial refuse will rise. In order to maintain environmental sound residential neighbourhoods proper refuse collection must be done. The

council will be expected to provide dumping bins within the residential areas and trucks to collect them regularly.

#### 4) RESIDENTIAL ACCESSIBILITY

Mumias requires alot of improvement of its urban roads. In order to improve accessibility and circulation of traffic, improvements are required on the existing network and more added so as to cope with the increased traffic over time. In the new housing developments that will come later, it is expected that each residential dwelling will be provided with access roads incomformity with urban roads standards.

Another issue which should not be overlooked is that of pedestrian access. Foot access should be provided to as to enable the residents to easily reach their homes around and about their communities.

#### 5) SOCIAL INFRASTRUCTURAL FACILITIES

The provision of future housing needs also requires planning for social infrastructure such as Nursery schools, Primary school, recreational facilities and many other related facilities.

These facilities should be incorporated during the planning for residential dwellings to meet the future housing needs. Nursery schools and shopping centres should be provided within the precincts of major residential areas while recreational



facilities should be provided in central areas so as to benefit as many urban dwellers in the town as possible.

### 5.2.3. RESOURCES FOR FUTURE HOUSING DEVELOPMENT

The development of housing to meet the future housing requirements requires a lot of resources. The planning for the future housing needs to be successful, resources need to be available in terms of finances, building materials, and human resources. In this section a number of proposals are being made on how these resources can be acquired and made available so as housing development programmes can be implemented effectively.

#### 1) HOUSING FINANCE

Financial resources will be required not only to construct the physical housing structures but also for financing other housing related developments such as the provision of infrastructural facilities and services. In financing housing development, it is expected that both public and private sector agencies that are concerned with housing construction will be involved although much responsibility will be on the private sector.

The National Housing Corporation and the town council as public institutions, are expected to be the main financiers of the housing development programmes to be undertaken by public agencies. The NHC and the local authority will among other programmes be directly concerned in financing low-income

residential units such as the site and service schemes as proposed earlier. While the NHC may be able to raise enough funds to finance the proposed programmes through its normal sources such as government grants and loans from international agencies, the town council may not be able, especially when one consider its present financial status. For the council to be able to improve on its financial resources so that it will be able to raise adequate finance required for housing development, a number of proposals.

First, the councils should streamline the collection of licence charges and other council fees. The present situation is that the council is able to collect only about 45 percent of its total revenue expected from these sources (DURP: 1988). Since the number of taxable activities in the town are increasing then if an efficient collection system is instituted, the councils' financial kit will be boosted, with some directed to housing development.

Secondly, it is proposed that the urban service charges that were introduced in January 1989; where all urban centres deduct a specified sum of money from the salaries of workers living in the town, will be channeled towards the provision of infrastructure in the town. It is suggested that the money from the urban charges should only be used in improving the environmental conditions of the town through provision of adequate water supplies, electricity, sewerage system, road constructions and social amenities such as recreational halls and parks.

The third proposal is that a housing levy whereby employers would contribute towards a consolidated housing fund managed by the council should be established. This kind of tax would further strengthen the financial resources of the council. The council should strictly utilize this money in constructing houses for the workers. Apart from the above suggested financial sources, the council would also be expected to look for other external finances, say from the government in form of grants or loans from international donors.

Private sector agencies also expected to generate finances for housing development. Among those agencies in the town that are expected to play a role in financing housing development are the outgrower company, Mumias Sugar Company and some Cooperative movements. The Mumias outgrower company has already shown its abilities in financing housing development as exemplified by the estate they have built in the town. In future, the outgrowers company should expand its operations from financing of Sugar cane cultivation to housing development. Among the viable housing developments that this company can undertake are tenant purchase schemes and rental housing development. The company should construct a tenant purchase scheme for its workers and members (the Sugar-cane farmers) who will be paying back to the company from their salaries and Sugar cane proceeds after harvesting.

The Mumias Sugar Company already has build over 3,500 housing units for its workers. It is proposed that the company since it has the financial capability should construct more of

these workers housing. In addition, it is also proposed that the company should start a housing loan scheme for its workers who intend to build houses within the town. This proposal is intended to stimulate individual private home ownership within the town so as pressure on employer provided and rental housing is reduced.

The other source from which finances for the development of housing to meet the future housing requirements in the town can be generated are corporative societies. In Mumias there are presently over four cooperative societies. Experience from other towns in Kenya such as Nairobi has shown that the cooperative movement has potentials of financing housing development for its members (MALOBE: 1981). In Mumias the Corporative societies that have and can channel financial resources to housing development are the giant Musco (Mumias Sugar Company) Cooperative Society, Sukari Cooperative Society and the Small traders' cooperative society.

The cooperative societies can finance housing development in two ways. First, is through investment in rental housing or tenant purchase scheme. This approach will benefit the societies by boosting their revenue sources and hence high dividends to the members. The second approach can be providing loans and technical assistance to the cooperative members for the construction of their own individual dwelling units. The later approach requires that the local authority will allocate land to the cooperative societies intending to finance such types of development.

Lastly, it is proposed that other housing financial agencies such as Housing Finance Company of Kenya (HFCK), and building societies will come in to aid the other agencies efforts in housing development. Because of the nature of these financial institution of having high interest rates and requiring substantial security, it is expected that much of finances from this source will be geared towards the provision of high income housing.

All in all therefore, what Mumias town requires in terms of financing housing development for the future housing need is mobilization of its local financial resources towards meeting the housing needs.

## 2) MATERIALS FOR HOUSING CONSTRUCTION

As discussed in chapter three, Mumias is not well endowed with building material resources with the exception of clay soils which can be used in brick and tile making. Housing constructors presently have to import iron sheets, cement, concrete blast and timber from Kakamega, Bungoma and even Kisumu. The non-availability of building material in the local hardware stores have to some extent adversely affected housing construction. There is need to have materials sold locally so as to minimize transportation costs incurred by the constructors.

In this respect two proposals are being made. One, the local authority should licence more entrepreneurs who are interested in producing and/or stocking and selling of building materials.

In order to attract more enterprises into this kind of business it is suggested that licence fees should be reduced from the current Ksh. 4,000.00 per year to about Ksh. 2,500.00. Although this may sound like a loss of revenue for the council which could be channelled to housing development, it is actually not because it will later be recovered in terms of rates on buildings.

Secondly, it is proposed that research should be undertaken on the production of tiles and baked bricks for housing construction. The research should mainly focus on identifying an appropriate efficient technique of large scale production of the materials while at the same time improving their durability. The current technique in use (see plate 8 page 80 ) is unefficient. These improvement will not only lower production costs but increase productions to levels that can meet anticipated future increased demand.

### 3) MANPOWER RESOURCES

In addition to financial and building materials as the resources required for housing development; manpower is also another important resource. While it is evident from the unemployment rate that there is abundant unskilled labour that can be engaged in housing construction, more skilled and semi-skilled labour will be required. For the housing development and construction not to be hampered by shortages of specialised labour as it was really the case during the construction of the site and service scheme, more skilled personnel need to be availed.

Creation of the necessary skills to build the required housing stock and also maintaining them is very important.

It is recommended that the local authority and local community in general should promote skills training in the fields of Masonry, Carpentry, plumbing and other related areas through expansion of the existing youth polytechnics and providing it with adequate equipments that will be used for the training. The impartment of the local people with these skills will lead to the greatest possible mobilization of resources and their optimal utilization for housing construction and development programmes.

Another proposal in this respect is that in order to supplement the local efforts of training personnel, in housing construction, the local council should assist by engaging the services of a planner, quantity surveyor architect and if possible an engineer. These will be able to provide professional services and skills in carrying out housing development programmes.

#### 5.2.4. POLICY ISSUES FOR FUTURE HOUSING DEVELOPMENT

Beside the programmes outlined above, the planning for future housing needs also requires addressing certain housing policies, Unless this is done, the planning for housing will be incomplete and the town might continue to accomodate most of its inhabitants in unplanned residential areas. The housing policy that need attention are those related to development control, standards, and housing maintenance.

The subject of housing standards is broad and interwoven into the whole fabric of the housing problem. Housing standards are important because when adhered to, they improve the quality of life of the people. It has been argued that "in the absence of the concept of standards there would be no housing problem" because any type of structure could be accepted as an adequate dwelling unit (SHANKLAND: 1977). Although it has always been argued that housing standards are bad because they hinder housing development, it must be appreciated that it plays an important role in housing development.

Since the planning of housing to meet the future needs is not aimed at developing any type of structure in the name of a dwelling unit, it is recommended that all future housing construction should adhere to standards. In the absence of any other better standards, it is proposed that Grade II building by-laws should be adopted for all low income and middle income housing while Grade I building by-law for high income housing.

Apart from adherence to housing standards, there is also need to institute strict development control measures. Strict development control is recommended so that unauthorised housing developments that leads to slum proliferation does not occur. Strict development control should be seen as a means of achieving a sound urban environment. All housing development should be in conformity of a specified plan that the town council ought to produce.



Poor maintenance of dwelling units in the town has resulted into rapid depreciation and depletion of the existing housing stock. In order to safeguard the present and future housing developments from the wrath of rapid depreciation, certain laws need to be instituted to this effect. It is recommended that the local authority institutes a by-law which requires all owners of buildings to carry out regular preventive maintenances, say after every one year, and also some seasonal corrective maintenances works as required to restore the building to its standard form; say after every five years. Such a housing policy geared towards housing maintenance is expected to increase the life span of the dwelling structure and hence reduction of the future housing need due to depreciation and obsolescence.

### 5.3.0 SUMMARY

This chapter has looked into various measures that need to be undertaken for realising the future housing requirements as assessed by the study. It has identified the housing programmes that need to be carried out and how infrastructural facilities and services can be provided to stimulate the implementation of the housing development programmes.

It has been noted that, the resource requirements for the development of housing to meet all needs is great but still not impossible to acquire. To this effect, a number of proposals and recommendations have been suggested as to how best to plan for the availability of the required resources.

Lastly, some policy issues pertinent to housing development and construction have been discussed and recommendations given.

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## CHAPTER SIX

### 6.0.0 SUMMARY AND CONCLUSION

#### 6.1.0 SUMMARY

The aim of this study was the assessment of the future housing needs in urban centres. The main focus was on identifying the influencing factors and sources of the needs. In assessing the needs a number of conceptual and mathematical models that have been used in assessing future housing needs were evaluated in the literature review. Two models were subsequently adopted and were applied in carrying out the study. Kokus' model did provide for the steps to be followed in this assessment study while the UNs' model provided for the mathematical equations that were used in estimating the needs.

As required by the Kokus' model, the first step taken in the assessment of the housing needs was to establish the consumers. This necessitated studying the general background of the study area. In this, it was found that Mumias is a town of approximately 19454 inhabitants located in a rich agricultural region. Although its history dates back to the colonial period, its flourishing came only recently in 1972 after the location of the Mumias Sugar Industry. The town is experiencing a high population growth rate of about 7.1 percent at present. The high urbanization rates in the town has also been attributed with the rapid expansion of commercial and small scale industries.

It was also found that the incomes of the housing consumers is relatively skewed and later this was argued that it might affect the planning programmes for the future housing needs.

Since, the assessment of future housing needs should be based on the existing housing situation, the study also analysed this. The findings were that the majority of the housing stock in the town is of poor quality. They lack most infrastructural facilities and services, built of mud and wattle, thatch concrete blocks and G.C.I. Although most of the dwellings were built recently, their depreciation rate is high due to poor maintenance of the structures. It was also found that the town is having high occupancy rates because of shortages in housing. Overcrowding is more serious in the slum and squatter settlements where the low income earners live. In analysing the existing housing situation, the study also found that the housing shortage in the town is acute not only because of the influx of immigrants to the town but also because the national housing policies have not effectively been implemented.

After analysing the urbanization trends of the town and the existing housing stock, it was concluded that the housing needs for the future will be emanating from four main sources. First, the existing sub-standard housing which are in the slum and squatter settlements; overcrowding in the habitable units; loss of dwelling due to high rate depreciation that are as a result of poor maintenance and old age of the building; and the population increases due to the expansion of the towns economic opportunities.

Having identified these sources, the UN model was used to estimate the magnitude of the future housing need that is likely to arise from each identified source. It was found that Mumias will require between 11424 and 4142 dwelling units by the year 2008 depending on the population growth rate. The higher estimate was calculated using a 7.1 percent growth rate while the lower estimate used a 3.8 percent rate.

The study also identifies a number of planning problems and constraints in the development of adequate housing units to adequately meet the future needs. It was found that due to the rapid expansion of the town, especially in terms of its population due to the immigration, it could be difficult to control further proliferation of sub-standard housing. This was seen to be the likely situation especially in the absence of proper development control measures in the study area. Secondly, the study revealed that if the government continued to be less committed in undertaking housing development programmes then the urban dwellers will continue to be accommodated in sub-standard housing units. The other problems identified were those concerning lack of resources for housing development and appropriate policies to guide such developments.

Finally, the study gave a number of recommendations and proposals, that are aimed at realizing the objective of decent housing for every household in the study area by the year 2008. The recommendations were suggested in four broad categories. The first category was identifying the housing programmes that suits the

study area, taking into consideration the nature of its future housing needs; the second looked into how best infrastructural facilities could be provided to aid housing development, the third category were concerned on how financial, personal and building material resources can be availed and the last looked to the general policy issues in relation to housing development control, standards and housing maintenance.

#### 6.2.0 CONCLUSION

It can be concluded from this study that the future housing needs in small urban centres need a thorough assessment. The assessment models developed by Kokus (1974) and the United Nations (1973) have been found to be sufficient in achieving reliable estimates which planners can utilize when planning for the future needs. The Kokus' model offers useful steps that can be followed in assessing housing needs in any urban centre while the UN model is an open manual, whole equations looks at all the variables that are likely to influence housing needs.

In Mumias, it is concluded that much of the future housing needs will be due to the spill-overs of the giant Mumias Sugar Industry which is the hub of Mumias growth. The Mumias Sugar Industry has attracted more people into the town and hence created the present housing shortage and expected to contribute significantly to the future need. It can also be concluded that the housing problem in the town is both a qualitative and quantitative housing problem. Qualitatively, we find that most of the dwellings are

unacceptable, and quantitative shortage is evidenced by the high occupancy rates.

Due to the nature of the future housing needs and the problems identified, the planning for future housing needs requires both public and private participation. It can therefore be concluded that the planning approach required is a comprehensive environmental approach, where the public sector provides for the infrastructure and general improvement of the environment while the private sector invest more into improving and construction of new physical housing structures.

#### 6.3.0 AREAS FOR FURTHER RESEARCH

The subject of housing needs is a broad one and there are various other issues which need further research:

- 1) This study has not investigated into the kinds of dwelling units that could be most acceptable in the study area considering the socio-cultural background of the people. It is suggested that a study which looks into the socio-cultural aspect of future housing need be undertaken.
- 2) This housing needs study has simply analysed the housing need in an aggregative manner, there is need to study the various future needs with respect to income categories in planning for the future needs in small urban centres it is important to know how many units will be requested for the low-income middle income and high income residents respectively. This should therefore be a study on Housing needs and the affordability capacity of the dwellers in small urban centres.



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UNIVERSITY OF NAIROBI  
DEPT. OF URBAN AND REGIONAL PLANNING

HOUSEHOLD QUESTIONNAIREA. GENERAL INFORMATION

- 1 (a). Estate \_\_\_\_\_ (b) House No. \_\_\_\_\_  
 (c). Date of interview \_\_\_\_\_ (d) Interviewer \_\_\_\_\_
- 2 (a). Number of Respondent (optional) \_\_\_\_\_  
 (b). Relationship with Head of household \_\_\_\_\_  
 (c). Age \_\_\_\_\_ (d) Sex \_\_\_\_\_ (e) Occupation \_\_\_\_\_  
 (f). Education \_\_\_\_\_

B. DEMOGRAPHIC

- 3 (a). Size of household \_\_\_\_\_ (No. of people)  
 (b). Composition of the household

| No. | Age | Sex | M/Status | Education | Occupation | Work place |
|-----|-----|-----|----------|-----------|------------|------------|
| 1.  |     |     |          |           |            |            |
| 2.  |     |     |          |           |            |            |
| 3.  |     |     |          |           |            |            |
| 4.  |     |     |          |           |            |            |
| 5.  |     |     |          |           |            |            |
| 6.  |     |     |          |           |            |            |
| 7.  |     |     |          |           |            |            |
| 8.  |     |     |          |           |            |            |
| 9.  |     |     |          |           |            |            |
| 10. |     |     |          |           |            |            |

- 4 (a). Head of Households' place of birth \_\_\_\_\_  
 (b). If not Mumias town, period of stay in Mumias

- (c) Reasons why he/she moved to Mumias \_\_\_\_\_
- (d) Other place which he/she resided for more than a year before coming to Mumias \_\_\_\_\_

1. \_\_\_\_\_ from \_\_\_\_\_
2. \_\_\_\_\_ from \_\_\_\_\_
3. \_\_\_\_\_ from \_\_\_\_\_

C. OWNERSHIP OF DWELLING UNITS

5. Who owns this house?

- (i) Urban/County Council \_\_\_\_\_ (ii) Institution \_\_\_\_\_
- (iii) Company \_\_\_\_\_ (iv) Private individual \_\_\_\_\_
- (v) Self \_\_\_\_\_

6 (a). If NOT Self, what are the terms of occupying the house.

- (i) Rental \_\_\_\_\_ amount per month \_\_\_\_\_
- (ii) Leased \_\_\_\_\_ period \_\_\_\_\_ Amount \_\_\_\_\_
- (iii) Employer Provided \_\_\_\_\_ (iv) Other (specify) \_\_\_\_\_
- (b) For rental/lease; is the rent/lease considered to be
- (i) High \_\_\_\_\_ (ii) Fair \_\_\_\_\_
- (iii) Low \_\_\_\_\_

7. If owner-occupied (self) did you

- (i) Construct/build it yourself \_\_\_\_\_
- (ii) purchased it from an individual \_\_\_\_\_
- (iii) Tenant purchased \_\_\_\_\_
- (iv) Inherited \_\_\_\_\_
- (v) Other (specify) \_\_\_\_\_

8. Do you sub-let YES/NO \_\_\_\_\_

If YES how many people \_\_\_\_\_ Rent per month \_\_\_\_\_

D. OWNER-OCCUPIED DWELLINGS

9. When was the house built \_\_\_\_\_

10. How much did it cost to build/purchase ksh. \_\_\_\_\_
11. Sources of finance for building/purchasing the house
- (i) Savings (personal) \_\_\_\_\_ (ii) Co-operative loan \_\_\_\_\_
- (iii) loan from other sources \_\_\_\_\_ (iv) other (specify) \_\_\_\_\_
12. Problems faced in obtaining finance for the purchase/construction of the house \_\_\_\_\_
- \_\_\_\_\_
13. How did you construct the House
- (i) Individually with family help \_\_\_\_\_
- (ii) Self with help from the community \_\_\_\_\_
- (iii) Engaged artisans (fundis) \_\_\_\_\_
- (iv) Contractor \_\_\_\_\_
- (v) Other (specify) \_\_\_\_\_
14. Where did you get the material for building
- (i) within Mumias town \_\_\_\_\_
- (ii) outside town but within Urban Council \_\_\_\_\_
- (iii) outside Urban Council \_\_\_\_\_
- (iv) supplied by contractor/fundis \_\_\_\_\_
15. Did you face any problems in obtaining the building materials
- YES/NO \_\_\_\_\_
- If YES, Explain \_\_\_\_\_
- \_\_\_\_\_
- 16 (a). How did you obtain the plot on which you have built the house
- (i) bought \_\_\_\_\_ (ii) leased \_\_\_\_\_
- (iii) given \_\_\_\_\_ (iv) inherited \_\_\_\_\_
- (v) other (specify) \_\_\_\_\_
- (b). If bought/leased, how much did you pay Ksh. \_\_\_\_\_
17. Generally, what problems did you face in building the house
- \_\_\_\_\_



# E HOUSING STRUCTURE AND FACILITIES

18. Type of House (i) Traditional Hut \_\_\_\_\_  
 (ii) Swahili house \_\_\_\_\_  
 (iii) Flat \_\_\_\_\_ (iv) Bungalow \_\_\_\_\_  
 (iv) other (specify) \_\_\_\_\_
19. No. of habitable rooms \_\_\_\_\_
20. Materials of construction
- (a) Floor (i) Earth \_\_\_\_\_ (ii) cement \_\_\_\_\_ (iii) other \_\_\_\_\_
- (b) Wall (i) Brick \_\_\_\_\_ (ii) stone \_\_\_\_\_ (iii) concrete \_\_\_\_\_  
 (iv) Mud and wattle \_\_\_\_\_ (v) other \_\_\_\_\_
- (c) Roof (i) Thatch \_\_\_\_\_ (ii) Flattened Tin \_\_\_\_\_  
 (iii) Tiles \_\_\_\_\_ (iv) G.C.I. \_\_\_\_\_ (v) other \_\_\_\_\_
- (d) General condition of the structure
- (i) Good \_\_\_\_\_ (ii) Fair \_\_\_\_\_ (iii) Poor \_\_\_\_\_  
 (iv) V. Poor. \_\_\_\_\_
21. Maintenance and repair of the structure
- (i) Good \_\_\_\_\_ (ii) Fair \_\_\_\_\_ (iii) Poor \_\_\_\_\_  
 (iv) V. Poor \_\_\_\_\_
22. Facilities:
- (a) Water (i) piped \_\_\_\_\_ (ii) communal (piped) \_\_\_\_\_  
 (iii) Other (specify) \_\_\_\_\_
- (b) Toilet:
- (i) Private flush \_\_\_\_\_  
 (ii) Communal flush \_\_\_\_\_  
 (iii) Private Pit \_\_\_\_\_ (iv) communal pit \_\_\_\_\_  
 (v) V.I.P. \_\_\_\_\_ (vi) NONE \_\_\_\_\_
- (c) Kitchen (i) Separate (indoor) \_\_\_\_\_  
 (ii) Separate (outside) \_\_\_\_\_  
 (iii) None \_\_\_\_\_

(d) Lighting (i) Electricity \_\_\_\_\_

(ii) Parrafin \_\_\_\_\_

(iii) Other \_\_\_\_\_

(e) Gabbage Disposal (i) Private Dustbin \_\_\_\_\_

(ii) Communal dumping \_\_\_\_\_

(iii) Buring \_\_\_\_\_

(iv) Other \_\_\_\_\_

(v) No proper method \_\_\_\_\_

23. (a) Do you consider this house to be adequate for the household

YES/NO \_\_\_\_\_

(b) If NOT Why? \_\_\_\_\_

24. (a) What type of housing do you think would be adequate/  
satisfactory \_\_\_\_\_

(b) Give reasons \_\_\_\_\_

25. How much could you pay for such as house

(i) If rental (rent per month) \_\_\_\_\_

(ii) If tenant purchase (monthly repayment) \_\_\_\_\_

26. (a) Do you consider the present environmental quality of the  
house to be adequate YES/NO \_\_\_\_\_

(b) If NOT Why \_\_\_\_\_

27. (a) Given the option to choose an alternative place to live,  
which estate would you prefer to move to \_\_\_\_\_

(b) Why \_\_\_\_\_

28. What makes you not to be able to stay in the preferred Estate?

(i) Rent is high \_\_\_\_\_

(ii) I have not found a vacant house \_\_\_\_\_

Hse.

[illegible]

## KEY

Rep.&Mtce. = Repairs and Maintenance  
 Access. = Accessibility  
 Ref. = Refuse Collection  
 H<sub>2</sub>O = Water

Sew. = Sewage disposal  
 Strs. = Street lighting  
 Scns. = Schools  
 Hosp. = Hospital

Mkt. = Market  
Recr. = Recreation facilities