

TOWARDS A HOUSING STRATEGY TO SUPPORT INDUSTRIAL
DECENTRALIZATION: A CASE STUDY OF ATHI RIVER TOWN

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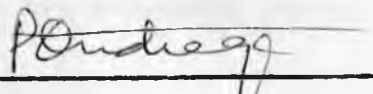
NAIROBI, KENYA.

DECLARATION

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

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

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ABSTRACT

Kenyans are faced with an enormous task of hastening industrial development in support of the dominant agricultural base in order to attain the general development objective of improving their living standards. Various industrialization strategies have been formulated in order to attain such objectives to a wider cross-section of the Kenyan population. Chief among them is the decentralization strategy to **deconcentrate** industries from the major congested urban centres to other smaller ones and to the rural areas. This study steers towards generating housing strategies to support industrial development and the general urban decentralization process; taking Athi River Town as the case study area.

Central to this study is the fact that, there is a nationwide problem of housing especially in the large urban centres which have, over the last two decades and a half or so, attracted tremendous rural-urban migrants seeking improved living conditions and especially employment in the industries and other related sectors. The main focus of the study is therefore to formulate better housing strategies for an industrial workforce in a growing industrial urban centre, of course, bearing the requirements of a general urban population.

Athi River has a fairly diverse industrial sector consisting of over 17 manufacturing industries most being labour intensive employing over 100 workers. It is Kenya's eighth leading industrial town in terms of employment in manufacturing and seventh in terms of earnings in manufacturing. In terms of employment, the prominence of manufacturing (83.5%) over other types of employment is unrivalled in Kenya, but takes a second position after Thika in terms of proportion of earnings from manufacturing (52.6%) to the total. This suggests that, most of the labourforce in the town consists of an increasing number of unskilled and semi-skilled labourers who have limited economic capability to occupy or own good quality housing.

The study did appreciate the housing problem in the town inspite of the various agencies that have responded by providing more housing. The study established the enormous role staff housing has and can play in providing better housing more effectively for industrial workers than any other methods. The flexibility of private housing initiatives, albeit often with compromised standards, irrespective of affordability, offers substantial opportunity and a house for everyone. Public housing is most commendable in providing good quality and relatively cheap housing to a general urban population (-at least compared to staff housing) particularly

within the affordable limits of more low income households. As such, it is established that the roles of the three methods are indispensable if the housing problem is to be progressively surmounted principally because of their sectoral but . fairly overlapping contributions.

Given the dwindling committment of public resources on housing, consequent to shifting government policy away from public housing, this study orientates, as areas of emphasize, most of the recommended housing strategies towards mobilizing more resources of the private sector into housing both from the employer (the industry), **the** worker and the private (individual) housing developer. This is either collectively, in partnerships or individually facilitated partly by government policy and housing associations. The economic realities, however, dictate continued (at least in the short term) public sector investment in rental housing developed with fairly long loan repayment periods to house especially more low income workers as well as provision of trunk services to facilitate private and staff housing developments.

It was established that housing developments in Athi River could serve both local demand and external demand arising mainly from Nairobi. While primary

emphasize should be to meet local demands to reduce relying on Nairobi for residences, surplus housing could easily serve the Nairobi market and thus in effect decongest Nairobi and promote urban development in the suburbs.

The study therefore suggests a framework of involving individual, industry, communal, local Authority and government resources to reinforce industrial development and the urban decentralization process. This will help not only attaining reasonable housing for the residents of Athi River Town but also go a long way in promoting industrial development and contributing in improving the general national economic performance.

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CHAPTER ONE

INTRODUCTION

1:0 INTRODUCTION

Industrial and urban development are essential components in the development process of a modern society in its quest for improved living conditions. This entails efforts to improve standards of basic necessities such as food, education, good health, housing, security etc. Conditions of housing, like the other basic needs, can be used to gauge the level of development. Good housing can also be a means contributing towards achieving industrial and urban development. Development therefore must involve harmonising production and service provision so as to attain, at least, basic needs.

Unfortunately, in developing countries, developments in industry, and notably in urban areas, have not been able to keep pace with housing. Emphasize has been placed on the more productive aspects of development disregarding essential services including housing. Greater industrial developments are concentrated in the urban areas and especially in the largest, often called primate cities; therefore attracting rural urban migrants at magnitudes that overstrain the urban infrastructure. Housing in particular has continued to drag far behind, stimulating an array of public and private supply strategies and a variety of research efforts all geared, though futile, to providing adequate housing for all households.

The contribution of this study is hopefully towards developing a housing strategy to support industrial development in an effort to support decentralization particularly within an urban environment taking Athi River Town as a case study.

1:1 STATEMENT OF THE PROBLEM

In developing countries, economically productive activities are generally at low levels and are often primarily agricultural. But with development, phenomenal growth has been experienced in the industrial sector. However, industries have tended to concentrate in the urban areas. Given the low levels of production from agriculture relative to industry, the latter has tended to attract more agricultural-based rural populations into the industrialized urban areas. This, together with high rates of natural population, has led to unmanageable population growth in the urban areas causing problems in the provision of health, education, housing and transportation services, employment etc.

In Kenya, and elsewhere in the developing countries, urbanization problems are felt in the large urban areas and more in the large primate cities. In response to the urbanization problems, urban decentralization policies

have been formulated upon the realization that the problems arise due to the high numbers and rate of population growth in urban areas. A strategy that has been used to decentralize urbanization is to decentralize economic opportunities (- the primary pull factor of rural-urban migrants) from the large urban centres (e.g. Nairobi) to smaller and intermediate urban centres (such as Kisumu, Nakuru, Eldoret etc). Expanding and new economic opportunities are expected to be increasingly directed to the smaller and intermediate urban centres. This is expected to attract populations who would otherwise have migrated to the primate cities. Besides, while reducing problems in the large urban areas, this is also expected to stimulate faster development in rural areas where most people (85% in Kenya) live.

Industries provide the economic base of urban areas upon which more employment opportunities would be generated and attract more people. As such, one and perhaps the most effective strategy of urban decentralization is to decentralize industrial development. Such decentralized economic opportunities would, by multiplier effects, stimulate development of other service sectors which would collectively support urbanization in such urban areas. Kenya's development plans have always advocated this strategy.

Nairobi's industrial sector is far more developed than other towns in Kenya. As a result, the city is further favoured by the advantages accruing from economies of agglomeration which develop better given a capitalist free - market politico-economic system which Kenya has adopted. Besides, the infrastructure required for industrial development are expensive investments and are often lacking in the other urban areas. These factors tend to favour the city and slow the rate of industrial decentralization. Thus, industries tend to locate at or close to this industrial pole, making industrial decentralization objectives rather futile. In effect, this has made Nairobi to extend its influence into the surrounding area through several development axis with several cores or centres of growth; thus forming a metropolitan region extending beyond the city boundary.

Thus, inevitably, new policies have emerged in Kenya and elsewhere, advocating decentralization within a given city - region or metropolitan area. The Nairobi Metropolitan Growth Strategy, a document formulated by a World Bank sponsored Nairobi urban study group in 1972 (which was prompted by the urbanization problems then experienced in Nairobi) suggested guidelines to direct urban development within the Nairobi Region. The group formulated two strategies, a city strategy and a Regional

or Metropolitan strategy. The city strategy advocated decentralization of industries from the major industrial area to other secondary industrial centres within the city boundaries namely Dandora, Kahawa, Kasarani, Ruaraka and Dagoretti. This strategy is aimed at dispersing population settlement and the closely related employment areas within the city while improving the commuter transportation system.

The metropolitan strategy identified potential axis and cores or centres of development outside the city boundary. The main axis was the Nairobi - Thika axis while the city was expected to expand eastwards. Also advocated is the development of Athi River as a new city to assist in industrial and urban decentralization. Other industrial centres expected to play a role include Thika, Kiambu, Ruiru and Limuru; and Machakos.

Thus, industrial decentralization should be directed to zones within the city as well as to the suburban centres so as to create a harmonious urbanization within the city and its region. Suburban, unlike intra-urban industrial decentralization, is considerably expected to favour certain industrial developments e.g. such as those operating at fairly large scale. Such industries

require large areas of land among other requirements that would not be readily available in Nairobi's industrial area.

Athi Tiver Town, being more geographically close to Nairobi has emerged as a natural location of industries. It has the land and infrastructure required for industrial development, besides sharing the advantages associated with its proximity to Nairobi. The geographical advantage as well as the policy measures have improved industrial development in Athi River. The document failed to set guidelines of providing housing in the suburban industrial centres to support the anticipated industrial development. Since most of the suburbs are within the commutter distance of Nairobi, inadequate housing in the suburbs would force workers to commutte to residence in Nairobi, thus frustrating the objectives of the decentralization strategy. Housing should therefore accompany industrial development in the suburbs.

While Athi River can develop into a industrial suburb , it can also develop housing to cater for the increasing number of Nairobi workers given the housing problem in Nairobi. Thus, with proper development, Athi River can develop into both a industrial and a residential suburb of Nairobi; both favouring urban decentralization.

This study aims at a housing strategy for industrial development and thus in a way, supporting the decentralization policy.

Athi River is located within an area of Ranches and Parks with little rural settlement. Thus, attempts of the surrounding rural population to invest in housing to house industrial workers are not existent in the town. There is more strict control of development in the surrounding area than is the case for Ruiru, Thika, Kiambu, Banana Hill and other suburbs. This implies that, housing has to be provided within the Town (authorised or non-authorised) or people would commute to Nairobi if the population is in excess of housing stock.

In response to the demand for housing in Athi River, various public and private agencies have contributed towards providing shelter in the town. Both sectors should be involved so as to provide housing for a wider cross-section of the population. Shortfalls in housing lead to slum developments as well as squatter settlements near the places of work. Squatter settlements would develop if the affordable housing is too far or not there and when transportation costs are unaffordable. Already, slum and squatter housing conditions are emerging in the

town such as the Sophia, 'Bondeni', Makadara, Mutonguni residential areas.

This study is therefore based upon that background.

1:2 AIM AND OBJECTIVES OF STUDY

The aim of the study is to generate a housing strategy to support industrial development in Athi River Town in view of the existing housing and industrial situation and the anticipated demands arising from the industrial decentralization policy.

Specifically, the study objectives are to;

- (A) Examine the general housing and industrial developments in the town.
- (B) Examine the effectiveness of Public and Private housing institutions in meeting the towns housing requirement arising from industrial developments.
- (C) Examine the extent to which Athi River houses Nairobi workers and vice versa and finally,
- (D) Generate suitable housing strategies and policies to cope with requirements of the town especially those arising from industrial developments.

1:3 SCOPE OF THE STUDY

The scope of study is defined by the aims and objectives of the research. It will make a case for housing of industrial workers. It will involve examining the housing and industrial developments in the town and explore the possibilities of providing adequate housing to meet the demands of the industrial workers and the general urban population. A comparative assessment of the roles and effectiveness of the various Public and private housing agencies will be central in this study. This is with respect to providing adequate (quality and quantity) housing and the affordability of such housing to the residents with particular interest to the industrial workforce.

A physical survey of housing in the town is undertaken as well as a household socio-economic survey. Besides the field data, the study investigates issues pertinent to the subject matter as portrayed in government policy statements and research works.

A detailed analysis of the study area is undertaken within the background of the Nairobi region.

1:4 JUSTIFICATION OF STUDY

Good housing is a basic human need though it lacks

in many areas with most serious problems being felt in urban areas due to the relatively high population concentrations accompanied by an inadequate stock. This partly explains why the study is biased to an urban area. It is also currently a priority national development concern to decentralize industries and urban development and so strategies contributing to this objective are necessary. Besides, housing has also become a top priority development concern in Kenya.

Good housing improves the psychological, physical and general health of workers and so this would increase economic production in industry which is critically integral in the achievement of our development objectives.

Although a lot has been done, and said about housing, the housing problem continues and no adequate solution has been achieved. This study takes a rather sectoral approach by developing housing strategies for industrial workers as an area of emphasize. Effective urban decentralization requires not just emphasize of the low income households, as has been the case in the past researches, but on the entire labour force. Thus, this study will make a case for housing all households though will highlight areas of major concern.

Nairobi's primacy over other urban areas in Kenya remains and will continue to dominate due to its National, Regional, Continental and International importance and so attempts to radically decentralize its development to other far away intermediate towns will continue to be less effective in solving its urbanization problems. Such measures may **not only** fall short of the necessary effective incentives but may also be contrary to the operating free market forces enstrined in our politico-economic system. It is therefore inevitable that Nairobi will remain a strong development pole especially of industry which tend, by their nature, to agglomerate. As such, the effective approach would be to facilitate decentralization to nearby towns within the region which share the locational advantages alongside advocating decentralization to other intermediate towns. Housing is here seen as means of facilitating industrialization and so can be an effective decentralization tool.

The high rate of industrial growth in Athi River warrants need to develop suitable housing approaches to match the demand and encourage harmonious urbanization pattern in the town. The shanty settlements in the town are a sign of lack of compromise of the two making this kind of study necessary.

1:5 STUDY ASSUMPTIONS

In undertaking the study, a number of assumptions are made.

- (A) Industrial developments will continue at rates at least equal or above the current and so, industrial development is expected to increase.
- (B) Athi River should provide enough housing to its workers and should not depend on Nairobi.
- (C) Rural-urban migrations will continue though may progressively fall with time, but in real (absolute) terms, their effects on Nairobi will be quite considerable unless decentralization measures are effected.
- (D) Industrial and housing developments in Athi River. will attract or intercept migrants who otherwise move to Nairobi, and therefore favour decentralization.
- (E) The current dominant factors of industrial location will continue to prevail and thus favouring Athi River Town.

1:6 RESEARCH METHODOLOGY

This section outlines the methods used in undertaking the research. This includes the type and

source of data, Data Collection and Analysis techniques.

1:6:1 DATA COLLECTION

Primary and Secondary data were collected for use in the research. Primary data was collected through general field surveys observations, discussions and recording schedules in the field.

GENERAL FIELD SURVEY/OBSERVATIONS

This was to examine the general physical environment of the study area, including topography, vegetation, landuse patterns, type of developments and structures of developments particularly of housing. A preliminary physical survey of the study area was undertaken prior to the commencement of field data collection. Photographs were used to record data.

DISCUSSIONS

Discussions were used to collect data from selected individuals on a wide range of issues not obtained through recording schedules. Formal discussions were held with Athi River Town Council officials, officials of staff

housing agencies such as KMC, Kenya Railways, East African Portland Cement Factory (EAPC). Others were held with industrialists and industrial management. Informal discussions were held with the local community, including household heads, businessmen, industrial workers, etc.

RECORDING SCHEDULES

Three recording schedules were administered to household Heads, industrial workers and to housing agency officials. The household questionnaire was administered in order to collect socio-economic data for the towns population while the industrial workers questionnaire was administered to establish employment and residence of workers. The two are supposed largely to be complementary in the planning exercise. The recording schedules administered to housing agencies were designed to extract data on the provision of housing and the future plans towards housing.

SAMPLE DESIGN

The household and industrial workers questionnaires were administered to selected samples of households and industrial workers in the various industries. This was necessary given the financial, time and other resource

nts. An household sample of 120 households was from a cross-section of households in public and housing schemes in the town as shown in the low. This were selected using random systematic method in selecting households in each estate. hold questionnaire in the Appendix.

Household Sample Structure

Housing Estate	No. Interviewed
National Housing Corporation	5
Makadara Council Housing	20
East African Portland C. Factory	10
Kenya Meat Commission	10
Chloride Metals (K) Ltd.	5
Kenya Railways	7
Sophia	18
'Bondeni'	5
Makadara Village	6
Embakasi	22
Site & Service Scheme	12

The industrial workers sample was spread in 13 industrial manufacturing enterprises in the town and had a sample size of 304. (i.e. $n = 304$). This was collected using stratified random sampling and was structured as shown below.

Table 2: Employees Sample Structure

INDUSTRY	NO. INTERVIEWED
Naciti Engineers	11
Athi River Mining .	24
Refine oil	16
Auto Spring	29
Alfa Rammer Tannery	21
Chloride Metals (K) Ltd.	16
Nova Chemicals	13
Kenya Meat Commission	39
Kenya Threads	59
BarBar Tannery	17
Athi Chalk/Stores	20
Coral Paints	12
Werrot & Company Ltd.	27

SECONDARY DATA COLLECTION

This was largely a review on existing literature on issues under investigation such as housing, industrialization, urbanization and planning. This was

from government policy documents such as Sessional Papers, National Development Plans, National Housing Strategy for Kenya reports, research works etc. These were mainly obtained from various institutions including University of Nairobi Libraries, Ministry of Works, Housing and Physical Planning offices and Athi River Town Council offices.

1:6:2: DATA ANALYSIS

Data was analysed in the basis of various Public and Private housing schemes categorised into 4 broad categories namely Public, staff housing or institutional housing, Private housing and Site and service housing. Besides, further analysis was at the housing estate and household levels. Household data was analysed using common analytical techniques such as means, frequencies, percentages etc. Employees (workers) data was analysed using same techniques according to the various industries as well as the total industrial workforce sampled.

1:7: RESEARCH CONSTRAINTS

Time and Finance were notable constraints to the smooth running of the research especially given the busy and costly planning course coupled with occasional

commuting to Athi River by the researcher and travelling to the various many sources of data.

The all-time sensitive issues of income, expenditure pattern and investment were difficult to probe and get complete and reliable data. Many households Heads are not readily willing to give out such data. The question of income levels (i.e. salaries) of industrial workers had to be deliberately omitted out in the employees questionnaire especially given the large number of casuals in the industries; a fact the industrialists are unwilling to reveal.

Athi River Town is highly spread out over space. Coupled with the lack of transportation means within the town as well as the hot environment, this proved a tiring exercise due to much walking.

Environmental hazards arising from pollution e.g. noise, dust and bad smell were notable. The stone crushing machinery in the cement factory and Athi River Mining, accompanied by much noise was a serious constraint especially in interviewing industrial workers. The tanneries and the KMC, with significant organic wastes emit awful smelling wastes, which are unpleasant and an environmental hazard by definition.

Industrial activities are entirely geared to profit maximisation and so the researcher had to shorten the industrial workers questionnaire so as to be allowed by the industrialists to interview workers. This had an indirect effect of necessitating more data to be obtained through the household recording schedule which made it quite long; requiring a long time to administer and could easily bore respondents.

In spite of all these constraints, the researcher tried his best within the available time, financial and material capability to produce the plan document which hopefully satisfies the aims and objectives of the exercise.

CHAPTER TWO

LITERATURE BACKGROUND

2:0 INTRODUCTION

This chapter outlines the urban and industrial decentralization strategy in Kenya as well as the National policy on industrialization and housing. It then sets an overview of the industrialization and urbanization process and how they relate to one another. The principles of the New towns concept is looked into. It then defines housing and the housing problem and what scholars have said about it. The various Housing Supply agencies and types of housing are outlined before finally drawing a relationship between housing and industry.

2:1 NATIONAL POLICY

The urbanization problems experienced in the country, including congestion, poor provision of housing and other services, as well as a poor urbanization pattern for nationwide economic development, has created the need for urban decentralization. This, alongside other development initiatives in the rural areas, is expected to reduce rural-urban migration into the largest cities, especially Nairobi and Mombasa. This desire is well

articulated in government policy documents including all development plans from the second to the 5th National Development Plan. By encouraging development of intermediate and smaller sized urban centres, fast rural development as well as greater regional balance in development is expected. Kenya's Growth Centre concept (first spelt in the Second National Development Plan, 1970 - 74) enlisted Nine Principal Towns for decentralization namely Kisumu, Eldoret, Kakamega, Nakuru, Meru, Embu, Kitale, Nyeri, Thika, as well as many more urban centres categorised as Urban centres, Rural Centres, Market centres, and local centres. Gateway towns are growth centres of emphasis because of their vast largely undeveloped frontiers and include Narok, Isiolo, Kapenguria and Garissa. To relieve population and industrial pressure from Nairobi and Mombasa, industrial production is to be supported with the necessary infrastructure in Machakos and Malindi. Machakos falls within the Nairobi region which has other favoured centres for industrial development namely Athi River, Ruiru, Kiambu, etc. (Nairobi Metropolitan Growth Strategy). The Rural Trade and Production centres are selected rural based urban areas that would be given the necessary impetus so as to induce faster agriculture and related production activities in their environment. Development of industry is one of the key instruments in the decentralization process.

The objectives of development of industry (National Development Plan, 1983 - 88) in the country include; diversification of the National economy which is currently largely agriculture based, accomplishment of rapid rate of economic growth, improvement in export performance, production of supplies required to support development in the primary sectors of the economy, employment generation, production of goods and services to meet the basic needs, development of diversified technological base, dispersion of industry and the equitable distribution of the fruits of industrialization. Industry should grow at an annual rate of 7% for the rest of the century. Investors will be encouraged to locate new industries outside Nairobi and Mombasa. Efficiency of the industrial sector, based on the broad policy of efficient use of resources, are fundamental aspirations of industrial development.

According to the 1979-83 and 1984-88 National Developments Plans, alleviation of poverty and fulfilment of basic human needs; namely food and nutrition, housing, good health, water, education, security and law and order, have always been a major concern of Kenyan development efforts. On housing, attainment of adequate shelter for all has been the government policy since independence.

With the realization that, the most stressed in housing are the urban poor, most government efforts have been targeted to that group; either through a large volume of social rental housing and then, beginning in the 70's, sites and service schemes.

The National Housing Strategy for Kenya, 1987-2001 , states that, government recognises the social and economic importance of housing in that it affords dignity, security and privacy of the individual, family and the community as a whole. It directly and indirectly contributes to employment generation and incomes, increased health and productivity of the labour force and supports growth of the building materials and construction industry. The government stresses the need to develop new housing to support industrial expansion and special attention is paid to the low income earners.

However, with increasing government expenditure on other community consumption based basic needs such as education, health, security etc , alongside increasing financial austerity in the public sector, a greater share of the responsibility of providing basic needs to the people, including housing, must be borne by the private sector and those who benefit from such services. Greater private sector participation is expected from the

individuals, companies, Informal sector, co-operatives and community groups. Thus, the new strategy demands a gradual shift of the role of the government from one of direct developer of housing for low income households involving moderate subsidies to one of working with and facilitating (e.g. providing infrastructure, land) the development of this housing by private entities charging market prices.

Thus, in totality, the new strategy aims at an evolving housing policy that aims at innovation, resources mobilizations, broader resource allocation, activation of idle capital, and greater commitment to improved shelter in the urban (especially small urban areas) and rural Kenya. It is argued, a properly documented policy should be a resource mobilizing toll by itself.

Thus, while the UN recommends expenditure on housing to account for 5% of the National Budget, only between 2.7 to 4.1% has been spent by our government in recent years.

A positive housing policy can make substantive contribution to economic development and is an important tool for influencing the efficiency and equity of city development. A public housing policy has three major

areas of concern namely, regulatory, fiscal and financial, and supply policies. Regulatory policies includes land use planning, zoning, sub-divisions of land, building by-laws, building standards and rent control. Fiscal and Financial policies include control of mortgages, property taxation, budgeting and user charges on housing services. Supply policies will involve the various agencies both Public and Private.

The major objectives of the housing policy include; the formulation and adoption of realistic oriented building standards especially for low-cost housing, Tenants and landlords protection through the rent control tribunals, Self-help housing is to be promoted to increase housing stock at a reduced construction cost while intensifying research on and use of local building materials and construction techniques. The government policy desires the development of flats for sale through legislation for the registration of titles to individual flats. Need is expressed to explore the feasibility of instituting a housing levy whereby employers contribute towards a consolidated Housing Fund.

Identified housing strategies for greater promotion include urban low-cost housing through site and service

and settlement upgrading, co-operative housing, civil servants housing and institutional housing. Private sector housing is expected for all income groups. Rural housing is to be assisted through rural home improvement loans and other rural environmental enhancement measures. The housing programmes will involve Housing department of the Ministry of Lands and Housing, National Housing Corporation, Housing Finance Institutions, Private developers and National Co-operation Housing Union (NACHU).

Through the various agencies and strategies, provision of housing should match the planned and anticipated industrial and urban developments being filtered down from the large urban areas to the smaller and intermediate ones. This is more so in suburban industrial concentrations where inadequate housing may necessitate the large city to provide housing to the suburban workforce.

Working upon the background of that National Industrialization and Housing policy, this study hopes to establish what has been done in Athi River and the options available for improvement.

2:2 INDUSTRIALIZATION AND URBANIZATION

Industrialization involves the development of industry including extractive, manufacturing and service

industries. It involves capital and labour intensive production in contrast to agricultural production. Industrial development includes expansion of existing (e.g. in output) as well as production of new commodities and services and change in production techniques all geared towards efficiency of production. Urbanization on the other hand involves expansion of urban areas as well as the evolution of new ones supporting considerable population concentrations.

Industrialization and urbanization are both development process that often and ideally should go hand in hand. However, in pre-industrial cities, the urban centres had a poor production structure but with improved production and service provision techniques, following the birth of industrialization in Europe, most urban centres will have industry. If urbanization (e.g. measured in population growth) is greater than industrialization there will be over-urbanization and many people will be unemployed, unable to afford basic services and therefore generating a complex of urban problems.

Industrial growth in urban areas stimulates faster growth and attracts rural urban migrants to take up the employment opportunities. The industries and the increasing labourforce require an assortment of services

and that concentration of processes and services and a large population leads to urbanization.

Only a few small urban centres are able to support much industrialization. Large cities are likely to support many industries where they will be able to share the expensive overheads of power plants, water supply, sewerage treatment plants, and other utilities as well as related skills and services supplied to supplement the industries. Hence, industrial decentralization is expensive investment and so only one or a few urban centres will dominate in early stages of development in a given development space unit.

Athi River prospers largely due to its proximity to Nairobi as a market for industrial goods besides as a source of infrastructure over and above what is already available in the town. Industries, other than mere provision of services is a better decentralization instrument, an aspect Athi River is currently better placed.

2:3 THE NEW TOWNS CONCEPT

The concept is used to refer to entirely new planned urban communities clearly detached from the commuting zone of existing cities. The new towns concept is

associated with urban theorists of western countries who cherish the ideal of optimal city size. It is thus different from the development of large scale neighbourhoods at the fringe of large urban areas as the case of Athi River is. However, the functions of a new town have a lot in common with such neighbourhood developments.

The original and still the most weighty reason for the development of new towns was the necessity of reducing the concentration of people and work places in very large towns, which otherwise cannot be relieved of congestion, disorder and squalor and rebuilt on a fully healthy, pleasant, socially satisfactory and efficient pattern. They are expected to provide employment to their residents in industries which will form the economic base of the city.

Osborn (1963), said such towns later acquired complimentary roles. They are to be based on modern industry in impoverished agricultural region so as to bring fresh vitality and better services in such regions. They would also concentrate quasi-urban units that are demonstrably too small, besides being a method of continuous intelligent control of development such as the first Garden cities of Letchworth and Welwyn in Britain, both having been advocated by the modern new towns movement started by Sir Ebenezer Howard.

Renand (1981), dislikes the idea of new towns as earlier stated especially where they are intended to alleviate congestion in old urban centres. He claims, they always have development problems and they have never absorbed the intended population whether they are intended to be industrial, residential or new capital cities. Infact, he strongly discourages such policy-making and planning in the developing countries, and by implication supports the idea of large scale suburban or neighbourhood developments as a realistic means of decongesting large cities.

2:4: SUBSISTENCE URBANIZATION

Breese (1966), used this concept to refer to the pattern of urbanization quite common in developing countries, where the ordinary citizen has only the bare necessities and sometimes not even those for survival in an urban environment. Indicators of such are very low levels of housing, nutrition, clothing and poor provision of other amenities. Living conditions of households may be worse than in their rural homes. This is caused by high unemployment as well as by strong rural remittances which deprive urbanites of their little income for sustenance.

2:5 HOUSING

Housing is a process involving production of shelter as well as the product. It may be viewed as a consumptive or social good. Shelter implies the dwelling unit of one family/household. In official terminology, a house is not a house unless it is appropriate under existing laws and as such may be referred to as legal or illegal, incomplete or finished (complete), temporary or permanent etc.

It involves provision of not only the appropriate dwelling unit but also a host of other community services such as schools, social halls, road networks, electricity, water and sewerage systems, etc.

Supply may be based on housing need or housing demand. In housing need, the objective is to supply housing to every household according to the countries stage/level of development, norms and values irrespective of a households ability to afford such housing. Housing demand only addresses to the desire for houses determined by the households economic ability to pay for it (i.e. affordability) based on market prices.

2:6 HOUSING PROBLEM

With its political, social and economic impacts and the astonishing and progressively increasing deficits, this is one of the thorniest problems in developing countries and the world in general. It has attracted a lot of research and practical efforts in Kenya and elsewhere in the world, culminating in the declaration of 1987 as the International Year of shelter. Housing is simply inadequate in both quality and quantity, the dwelling unit and in the necessary services, in rural and urban areas especially in the latter due to high population densities and growth rates.

Jorgensen (1975), says, a problem as serious and complex as this deserves even consideration of some unorthodox methods in order to achieve any possible improvement or simply to prevent a further deterioration in the situation.

Gullingworth (1979), says research on housing cannot come to an end since Housing is a dynamic basic need. He states a need is a socially accepted aspiration and the faster that one is met, the faster do new aspirations arise.

Turner (1976), on the other hand says that, the moment housing, a universal activity, becomes defined as a problem, a housing problems industry is born with an army of experts, bureaucrats and researchers whose existence is a guarantee that the problem won't go away.

Kenya Times (10th July 1987) recorded, (and as it is well known) that, the low income earner is the target group around which all policies, principles, beliefs, thoughts, ideas, discussions and myths of low cost housing problems are concentrated. But it continues to say, "we have seen and are seeing many different low cost housing schemes in developing countries which are not low cost at all and therefore do not reach the low income earner." They only reflect the elite values contained in government policies, building codes, laws, regulations and banking system.

While a lot has been done and said in Kenya on housing especially to the low income group, little exists about a housing strategy for supporting industrial development in view of the much talked about decentralization of urban development. More research is needed to establish how the public and various private housing initiatives can concert efforts to surmount the increasing

demand for housing by industrial labourforce to support industrial development. This study fits in that endeavour.

2:7 HOUSING SUPPLY AGENCIES

Supply of housing is by two broad categories namely Public and Private agencies. Public housing is by public institutions such as Local Authorities, National Housing Corporation, Central Government Institutions such as Ministry of Works, Housing and Physical Planning. Parastatal organization still fall under public institutions though they are more profit making (though not in housing) in nature than other public institutions. Urban based local Authorities often assisted by the National Housing corporation are the major suppliers of public housing. Such include Nairobi City Council/Commission, Municipal, Town and Urban Councils.

The National Housing Corporation, is the central government arm concerned with housing supply in urban areas by providing loans to local Authorities or constructing houses (usually in small urban centres) and then handing them over to the relevant urban based local authorities for management.

Parastatal organizations offering housing in Kenya include Kenya Railways, Kenya Pipeline Company, Kenya Meat Commission and East African Portland Cement Factory (both in Athi River), Educational and Research organizations etc. The Housing Finance Company of Kenya (HFCK) is a public (parastatal) Financial Institution involved in housing through mortgages as well as general savings.

Public institutions are not necessarily geared towards direct profit maximisation as is the case for Private housing. Traditionally, in Kenya, they are targeted towards the low income earners through rental and site and service schemes.

Private housing is supplied, owned and managed by private agencies aimed at profit maximisation. They include mortgage and other related financial institutions, Co-operatives, partnerships, companies and individuals. Most appropriate housing (based on existing standards) delivered by private agencies is for medium and high income groups other than for all income groups as expected. Private housing agencies have only delivered numerous low rent (in absolute terms) squatter and other poor low class residential developments. Construction costs are drastically cut-down to the affordability of the low income worker albeit at the expense of quality.

2:8 TYPES OF HOUSING

Types of housing are here categorised according to the method of occupation or method of supply. They include Rental Schemes, Tenant-Purchase, Mortgages, Owner-occupied, Squatter housing, Staff (Institutional) Housing, Settlement upgrading and Site and service scheme.

Rental schemes, which are most common in urban areas, are developed by the owner (a public or a private agency) and then rented to a consumer, a Tenant. Rents are paid monthly, quarterly or yearly depending on the arrangements made between the owner and the occupier. In Tenant-Purchase Schemes, usually financed by the government, a tenant occupies a house and repays a loan monthly upto a period of 20 years or so upon which he then owns the house. Conventionally, tenant-purchase schemes have benefited the medium income class while rental schemes house all income groups; Mass production of rental schemes, however, benefits low income workers.

In a mortgage scheme, a mortgage loan is extended by a financial institution which buys the house from the developer (if it is not the developer) and then recovers the loan from the buyer usually on monthly instalments. The HFCK is a Public mortgage institution, others are EABD and other Building Societies.

In staff/institutional housing, an employer builds, buys or rents houses and then allocates them to employees who pay for them through a check-off system. Squatter housing is one illegally developed on land for other purposes. Squatter housing is usually undertaken largely by Private developers and for the low income earners. Usually of temporary and at best semi-permanent structures, they can be rented or "owner"/builder - occupied'.

In owner-occupied housing, the owner of the house is the occupier and as such no rents are paid. Instead, land rates are paid (if it is not in a squatter settlement) to the local Authority or the Commissioner of Lands. Occupant may or may not have been the developer. Owner-occupied housing is the ultimate housing desire for all people seeking better housing conditions.

In site and service schemes, a Local Authority under the assistance of the government or any other assistance under guarantee of the government, provides serviced plots/sites to allottees for development. The allottees (so chosen usually by secret ballot) may borrow a loan from the financier through the local Authority or may seek finance elsewhere to develop his plot. In other cases, the local Authority may build the wet-core and an extra room or so and then the allottee completes it. In the end, they are usually rental or owner-occupied housing.

In settlement upgrading programmes, existing housing unfit for human habitation under existing standards may be partly improved so as to attain rather reasonable status; by providing lacking or inadequately provided services such as water, schools, electricity, roads, sewerage etc. In crowded areas, a few houses may be demolished to give way for the new services.

2:9 HOUSING AND INDUSTRIES

The two are related and development of one stimulates development of the other. David Owen, after having established this relationship, proposed that industrialists should supply houses for their employees for greater industrial production and economic performance. This ideally would reduce shortfalls in housing industrial workers. Good housing, and at convenient location to industry, improves the health and environmental well-being and dignity of the worker therefore increasing his productivity and consequent industrial output.

Industry requires substantial labourforce increasing demand for more housing and thus triggering development of a building materials and construction industry, furniture and fixtures industry, housing maintenance services and other community services. Industries, through industrial

interdependence, attracts more industry and labourers thus increasing more demand for housing.

Thus, housing and industrial development generate a complex interplay of related multiplier effects with one leading to the other and to other sectors of the economy. The totality of such multiplier effects is the development of a physically and functionally closely related sectors leading to development of an hub of activity - an urban environment, with a cumulative casual character.

Combined housing and industrialization strategies can therefore lead to considerable population decentralization and or disorientation from the major urban centres to smaller ones. Populations in large urban centres can be attracted to such small industrial hubs or the direction of rural-urban migrants can be changed towards the new centres.

CHAPTER THREE

STUDY AREA BACKGROUND

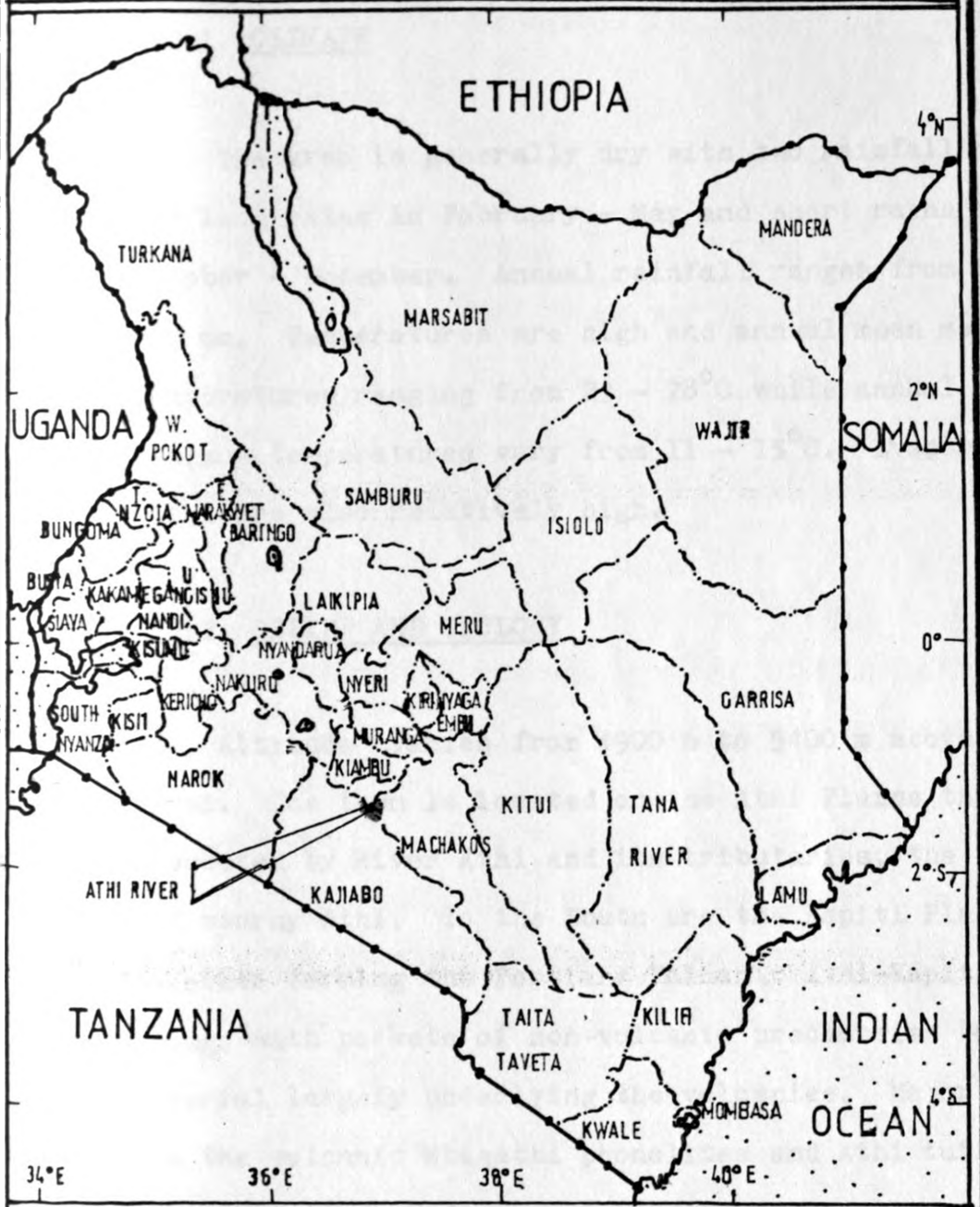
3:0 INTRODUCTION

The location and the physical environment of the town is given here as well as a brief historical development, and population characteristics. The Nairobi region is also defined. An outline is then given of the industrial, commercial, housing, transportation and community service profile of the town.

3:1 LOCATION AND EXTENT

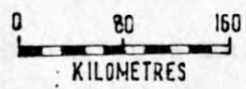
Athi River Town is located about 30 Km South East of Nairobi and about 35 Km North West of Machakos Town along the Nairobi - Mombasa communication axis. Occupying the North Western frontier of Machakos district, the town borders Kajiado district to the West and South and Nairobi city to the North. The town covers an area of about 225 sq. km and lies between longitudes 36.8° and 37.1° E and Latitudes 1.4° and 1.5° S and generally lies above 5000m above sea level. To the West in Kajiado district is a fast growing market centre with several industries (e.g. Western Beef Company) but physically and functionally related to Athi River Town except for the provincial boundary between the two. This market centre, Kitengela, has much in common to Athi River both developing as a single urban matrix. See map No. 1.

ATHI RIVER IN NATIONAL CONTEXT



LEGEND:

- INTERNATIONAL BOUNDARIES
- PROVINCIAL "
- DISTRICT "
- STUDY URBAN CENTRE
- WATER MASSES



MWAU HM
M. A (PLANNING)
THESIS 1987/88
MAP NO. 1

3:2 PHYSICAL CHARACTERISTICS

3:2:1 CLIMATE

The area is generally dry with two rainfall maximas and long rains in February - May and short rains in October - December. Annual rainfall ranges from 510 to 760 mm. Temperatures are high and annual mean maximum temperatures ranging from 23 - 28°C while annual mean minimum temperatures vary from 11 - 15°C. Evaporation rates are also relatively high.

3:2:2 RELIEF AND GEOLOGY

Altitude varies from 4900 m to 5400 m above sea level. The town is located on the Athi Plains though dissected by River Athi and its tributaries, the Kitengela and storny Athi. To the South are the Kapiti Plains together forming the Tertiary Volcanic Athi-Kapiti plains though with pockets of non-volcanic precambrian Basement material largely underlying the volcanics. Major rocks are the volcanic Mbagathi phonolites and Athi tuffs. Inland tertiary sediments including marls, limestone, clays, sands, gravels, pebble beds, sandstones and conglomerates occur. Other sedimentary rocks include the meiocene sediments consisting of shallow water lacustrine and fluviatile deposits with limestones.

These sediments are valuable sources of raw materials for the Cementary Factory located in the town.

3:2:3 SOILS

Major soils found are the Dark-grey brown soils, Black cotton clays, Red-brown soils, Yellow Brown Soils, Stony soils, and Alluviums. The Dark-grey brown soils are calcerous clay loams (rendzinic soils) overlying secondary limestone. They crack and have poor drainage and are predominant in Maboko (old town) and Makadara areas. The few pockets of Red-brown soils are found in the East where they are utilised largely for horticultural crop production. The Black-cotton soils, derived mainly from alluvium, cover large parts of the Athi-Kapiti plains. They have poor drainage and a constraint to urban development. The Yellow brown soils, originally a source of kunkur, a basic raw material in Cement production, are found to the North near the Cement Factory. Alluvium soils are deposited along river valleys. They are fertile and are useful for irrigated agricultural production especially horticultural crops. Stony soils are less common and are found towards the East where the Precambrian rock system predominates.

3:2:4 ECOLOGY

The area is of marginal agricultural potential characterised by dry forms of woodland and Savannah vegetation often of Acacia - The meda Association. It however, due to the open grassland, has high potential as a rangeland hence the many livestock ranching and Game ranches in the environment e.g. Kitengela Game Conservation Area, Nairobi National Park, Hopcraft's Game Ranch etc. Riverine (mainly acacia) vegetation run along river valleys while the environs elevated hills have marked woody vegetation cover.

3:2:5 DRAINAGE

The town is drained by Athi River and its tributary streams Stony Athi and Kitengela. The Athi has a permanent flow and is the major source of water (at least for the Local Council Water Supply) in the town as well as the drainage channel of industrial and urban wastes, albeit, posing a great health and environmental hazard. The Black cotton soils dominant in the town are poorly drained and a constraint to urban development.

3:2:6 AGRICULTURE

Large areas under deferred landuse or undeveloped sites are used for farming of cereals (mainly maize) and

horticultural crops (mainly vegetables along river valleys) for domestic consumption as well as for sale in the town. A few find their way into Nairobi or to the export market. Many Households in the town have Kitchen gardens especially the KMC and Cement Factory workers who get irrigation water from their companies supply system "free of charge". Poultry and other livestock are kept by a number of household. Livestock population increases, and actually becomes an hazard, during droughts when many farmers in Kajiado and Machakos district bring animals to Athi River for sell to save them from the drought.

3:3 HISTORICAL DEVELOPMENT

Athi River came into being following the construction of Kenya-Uganda Railway. A railway station, Maboko Railway Station, was established and became the focal point in the early development of the town. The station was established on the Athi Plains just before crossing River Athi and climbing on to the Embakasi Plains which extend into Nairobi and the Central highlands.

In the early part of the century, Athi River, (then known as Maboko) became an important trading and resting

place for Akamba Tribesmen engaged in poultry trade from Mua hills to the East. The first three shops in the town were established in 1919, 1924 and 1927. Athi River was then growing under the auspices of Nairobi county Council upto 1963 when the council was dissolved, and transferring it into Masaku County Council, and at the same time raising it to a urban council status, then covering an area of about 960 hectares.

The first industry was established in 1952, the KMC, followed by the Cement Factory in 1957. Both were attracted not only by nearby or readily available raw materials but also due to the added advantage of improved transportation network. Other earlier industries in the town were Kenya Threads, 1974; Chlorides Metals (K) Ltd, 1978; Refinoil 1981, Garlot (Manchester outfitters) 1979 etc;

In 1987, Athi River acquired a Town Council Status. Today, it is the fourth largest urban centre in Eastern Province after Machakos, Meru and Embu and 24th, in terms of population, in Kenya.

3:4 POPULATION

The population of the town is predominantly migrants from Machakos, and to a lesser extent from Kiambu,

Kajiado, Nairobi and other parts of Kenya. The area was formerly uninhabited and was mainly a ranching country (i.e. rangeland). It was more of a buffer zone between Akamba and Maasai, and so, due to their earlier hostilities, coupled with the arid environment, the area was not settled for a long time except ranching which came much later.

Faster population settlement started with the establishment of the Maoko Railway Station in the late 19th Century but increased greatly only after the 50's following the on set of industrialization as shown in the table below.

Table 3: Population Growth

Year	Population
1948	582
1969	5,343
1979	10,012
1981	11,500
1984	17,000
1988	20,000
2010	56,000

Source: Population Census Reports.* Council Estimates.

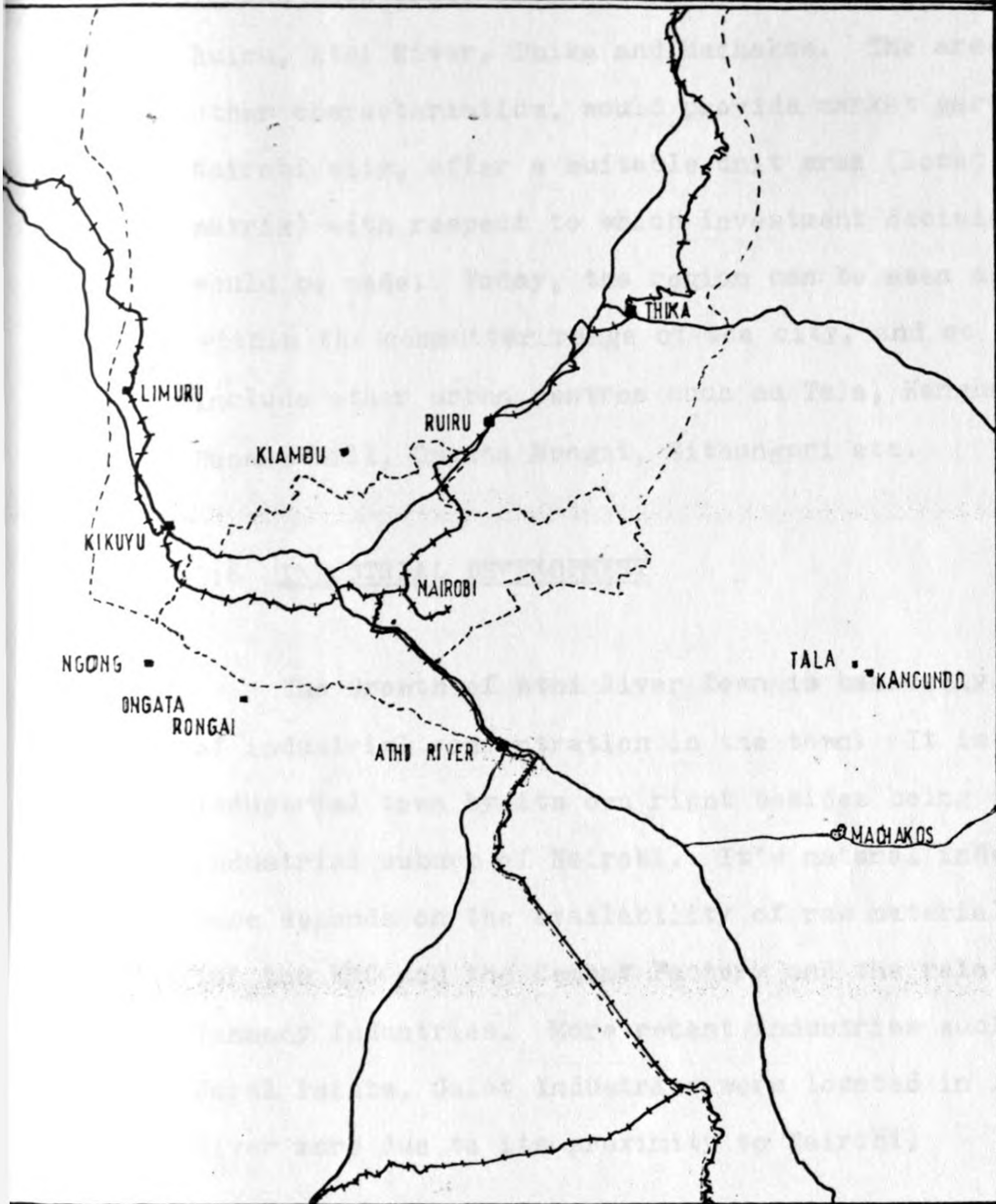
Most population growth is attributable to rural urban migration in pursuit of better living conditions especially seeking employment in the increasing number of industries in the town.

3:5 THE NAIROBI REGION






Nairobi's rapid urbanization and increasing problems especially soon after independence attracted attention of the World Bank, confirmed by a visit by World Bank President, Mr. Robert McNamara in 1972. This led to the formation of the Nairobi Urban study group to formulate the development strategy of Nairobi so as to minimize problems of employment, housing, expenditure on transport and other services, avoid encroachment into agricultural land and devise better landuse allocation. The group came up with two strategies namely the city and Metropolitan Growth Strategy, to guide development within the city and within the Nairobi metropolitan region respectively. Refer to Map No. 2.

They defined this as a region covering Nairobi city and parts of Machakos, Kiambu and Kajiado districts. It however, like all metropolitan regions, has an invisible boundary gradually yielding to the rural periphery. The region has several urban cores or control centres strongly

ATHI RIVER IN REGIONAL CONTEXT



LEGEND:

-  PROVINCIAL BOUNDARIES
-  DISTRICT "
-  URBAN CENTRES
-  MAJOR ROADS
-  RAILWAY LINE



MWAU H M
M. A (PLANNING)
THESIS 1987/88
MAP NO.2

linked to Nairobi city namely Limuru, Ngong, Kiambu, Ruiru, Athi River, Thika and Machakos. The area, among other characteristics, would provide market gardening for Nairobi city, offer a suitable unit area (location matrix) with respect to which investment decisions would be made. Today, the region can be seen as falling within the commutter range of the city, and so would include other urban centres such as Tala, Kangundo, Banana Hill, Ongata Rongai, Githunguri etc.

3:6 INDUSTRIAL DEVELOPMENT

The Growth of Athi River Town is basically a factor of industrial concentration in the town. It is an industrial town by its own right besides being an industrial suburb of Nairobi. It's natural industrial base depends on the availability of raw material principally for the KMC and the Cement Factory and the related Tannery industries. More recent industries such as Coral Paints, Galot Industries were located in Athi River more due to its proximity to Nairobi.

3:6:1 FACTORS OF LOCATION

Industries in Athi River vary from raw material oriented to market oriented industries. Industries that have located in Athi River due to availability or access

to raw materials include the two large industries the Kenya Meat Commission and East African Portland Cement Factory and Kitengela's Western Beef Company Ltd. Large deposits of raw materials for cement manufacture are found in the town along Mombasa Road while the good road and railway transportation network makes easy the transportation of other raw materials from Sultan Hamud and other parts of Machakos and Kajiado districts. Through the road and rail connections, the vast numbers of livestock from Kajiado and Machakos district are conveniently tapped by the Meat Industry. Other raw material oriented industries include the chalk, white wash and tiles manufacturing industries namely Athi River Mining Company, Athi Chalk and Kenya Gypsum Industries. The tanneries have principally been attracted by the presence of raw materials from KMC and the livestock rich districts of Machakos and Kajiado. Besides, the vast amounts of water from River Athi are essential in the production processes of the KMC and the tanneries.

Plate 1:



Auto-Spring along Makadara-Kitengela Road. One of the leading employers in the town.

Market oriented industries are mainly those that have located in Athi River to serve the resident population as well as the easily accessible Nairobi market. They include Galot industries, Kenchic, Chloride Metals (K) Ltd., Coral Paints, Naciti Engineers, etc.

Availability of raw materials, easy transport and communication, water, electricity as well as other infrastructure required for industrial development have

therefore attracted industrial location in the town. Easy transport ensures fast and convenient transportation of raw materials and finished products to market areas. With easy communication, most industries in the town, especially the market oriented industries, have their head offices in Nairobi and only production workshops in Athi River. Such include Coral Paints, Nova Chemicals, Kenchic, Athi River Mining, Kenya Threads, etc.

The availability of humble and relatively cheap land is a further factor for industrial development. Large tracts of plain land offer substantial opportunities for industrial expansion and this has tended to attract large scale industries e.g. Galot Industries, Kenya Threads. See Plate 1.

However, no single factor of industrial location can solely be used to adequately explain the location of a single industry in the town. The access to the market and export opportunities at Nairobi and the availability of infrastructure and resources of industrial development can be summed as the major factors of industrial location.

3:6:2 TYPE OF INDUSTRIES

Both Agro-based and non-agro-based industries are found in the town. Agro-based industries include the KMC, the Alfa Rammer and BarBar Tanneries, Kenya Threads

Manchester Outfitters and the Distillery establishment of Galot Industries (i.e. Mohan Meakin) and Posho Mills. Non-Agro based industries are much diversified and include Glass making unit of the Galot Industries, East African Portland Cement Factory, Athi Chalk and the Sister Kenya Gypsum industries. They also include the chemical industries namely Coral Paints, Refinoil and Chloride Metals (K) Ltd. Non-agro based industries also include service industries such as the construction and transportation industry (e.g. Kenya Railways) as well as several engineering workshops.

Industries can also be grouped into Extractive, Manufacturing and Service industries, though no purely extractive industry is found for many will also involve manufacturing e.g. KMC and the Cement Industry. Processing or Secondary industries in the town include those that acquire their raw materials from other industries. Such are more common and include the Tanneries, the chemical industries and the textile industries. Service industrial activities include Government and local Authority Services, the transportation and construction industry, etc. Specialized service (referred to as Quaternary Services) include various types of consultancies and banks etc.

3:6:4 MAJOR INDUSTRIES AND PRODUCTS

Athi River town, together with Kitengela in Kajiado district have over 19 extractive and manufacturing industries, 17 of them in Athi River. This gives Athi River a high concentration of industries given its population which is estimated at about 20,000. Below is a table indicating the major manufacturing industries found in Athi River and their final products. The industries tap the local, National and Export market. As such they offer possibilities not only in earning foreign exchange but also conserving it by import substitution. Industries producing goods for export include the KMC (now being restructured), Mohan Meakin, Coral Paints, Refinoil Industries, Nova Chemicals etc. These are involved in import substitution.

POLLUTION

Chemical processing which is undertaken by many industries causes pollution in the area. The mining industries, such as the Cement, Chalk, White Wash and Tile industries create both noise and air pollution by

Table 4: Industries and Finished Products

Industry	Major Products
Kenya Meat Commission	Meat, Canned Meat
East African Portland Cement	Cement
Mohan Meakin	Drinks
Galot Glass Industries	Glassware
Manchester Outfitters	Textiles
Athi River Mining	Tiles, White Wash
Athi Chalk	Chalk
Kenya Gypsum	Chalk, Plasters
Coral Industries	Paints
Chloride Metals (K) Ltd.	Automobile Batteries
Refinoil	Lubricants and Engine Oil
Nova Chemicals	Agricultural and other Chemicals
Auto Spring	Automobile Springs and other components
BarBar Tannery	Leather
Alfa Rammer Tannery	Leather
Werrot & Co. Industries	Machinery Assembly
Naciti Engineers	Bridge Bars, Posho Mill Equipment, Repairs etc.
Kenchic	Eggs, Chicken

dust particles emitted in the air. Their mining activities, near the town and elsewhere causes dereliction of land. Wastes from the KMC and the Tanneries pollute both the water and air by bad odours. Most wastes from

KMC, have a high level of blood content so that a release of them into river Athi would make the BOD level (Biological oxygen demand required to break down the wastes) unmanageable and so the industry has its own waste water disposal sites; where they also produce bad smell in the neighbourhoods. Most other industries have dry processing and are not particularly serious pollution hazards as of yet.

3:7 EMPLOYMENT

One of the major contributions of industry in the town is in the creation of employment opportunities. Industries directly employ workers engaged in the production and indirectly through the multiplier effect on other sectors.

Field work data indicated that, the manufacturing industries in the town employ over 3200 workers engaged in permanent and temporary basis and a considerable extra number of casuals. Most industries in the town are large scale employing over 100 persons. Many are unskilled and semi-skilled workers hence the industries are labour intensive. The many low income earners thus require cheap low income housing.

Table 5 below indicates employment totals and in manufacturing as well as earnings in 1985 in Kenya's leading industrial centres.

Table 5: Employment and Earnings in Kenya's major towns

	EMPLOYMENT			EARNINGS K£ 000		
	Manufac- turing	Total	%	Manufac- turing	Total	%
Nairobi	61,224	327,215	18.7	97,456.6	510,632.7	19.1
Mombasa	19,879	101,027	19.7	24,541.4	125,095.8	20.1
Kisumu	3,537	21,317	16.6	4,748.1	17,147.5	27.7
Thika	9,426	15,851	59.5	9,815.3	15,130.4	64.8
Athi River	2,310	2,763	83.5	2,567.6	4,881.8	52.6
Kericho	2,387	7,537	31.7	1,055.8	5,130.3	20.6
Nakuru	5,648	21,914	25.8	6,046.7	23,582.2	25.6
Eldoret	7,414	16,022	46.3	5,164.6	14,008.1	36.9
Webuye	1,474	1,983	74.3	150.4	3,209.5	4.7

Source: Statistical Abstract, 1986.

In absolute terms, as indicated in the table Athi River is Kenya's 8th most important town in terms of employment in manufacturing, but 7th in total earnings in manufacturing compared to its 24th position in terms of

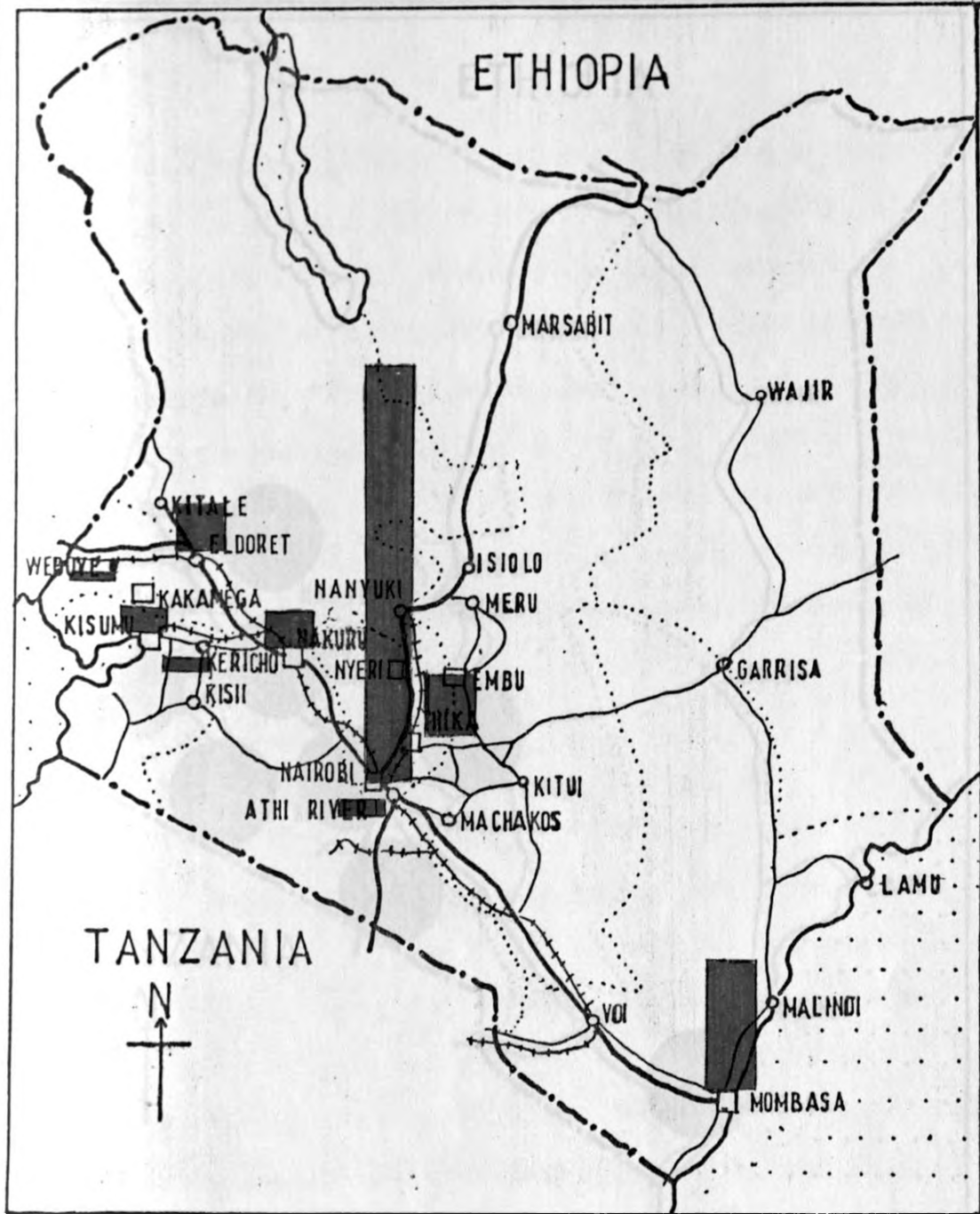
population size. Athi River is Kenya's leading town in terms of the proportion of its total workers employed in manufacturing (about 83.5%) seconded by Webuye and then Thika and Eldoret. In terms of earnings from manufacturing expressed as percentage of total urban earnings, Athi River takes second position after Thika. This analysis further establishes the importance of manufacturing to Athi River as well as the importance of the town to the country. Also refer to maps 3 and 4.

Employment in manufacturing in the town has been growing steadily from about 1199 workers in 1973, to 1652 in 1977, 2554 in 1980 to about 3200 in 1987, thus recording an increase of about 166% over that 15 year period. For selected periods, growth rate of industry measured using employment is shown below:

Table 6: Growth of employment in manufacturing

Period	Increase Rate
1973 - 1977	37.8
1977 - 1981	58.1
1981 - 1984	-13.0
1984 - 1987	38.5

Source: Statistical Abstracts and Field Data.



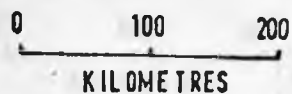
MAJOR TOWNS IN KENYA

EMPLOYMENT IN MANUFACTURING

LEGEND

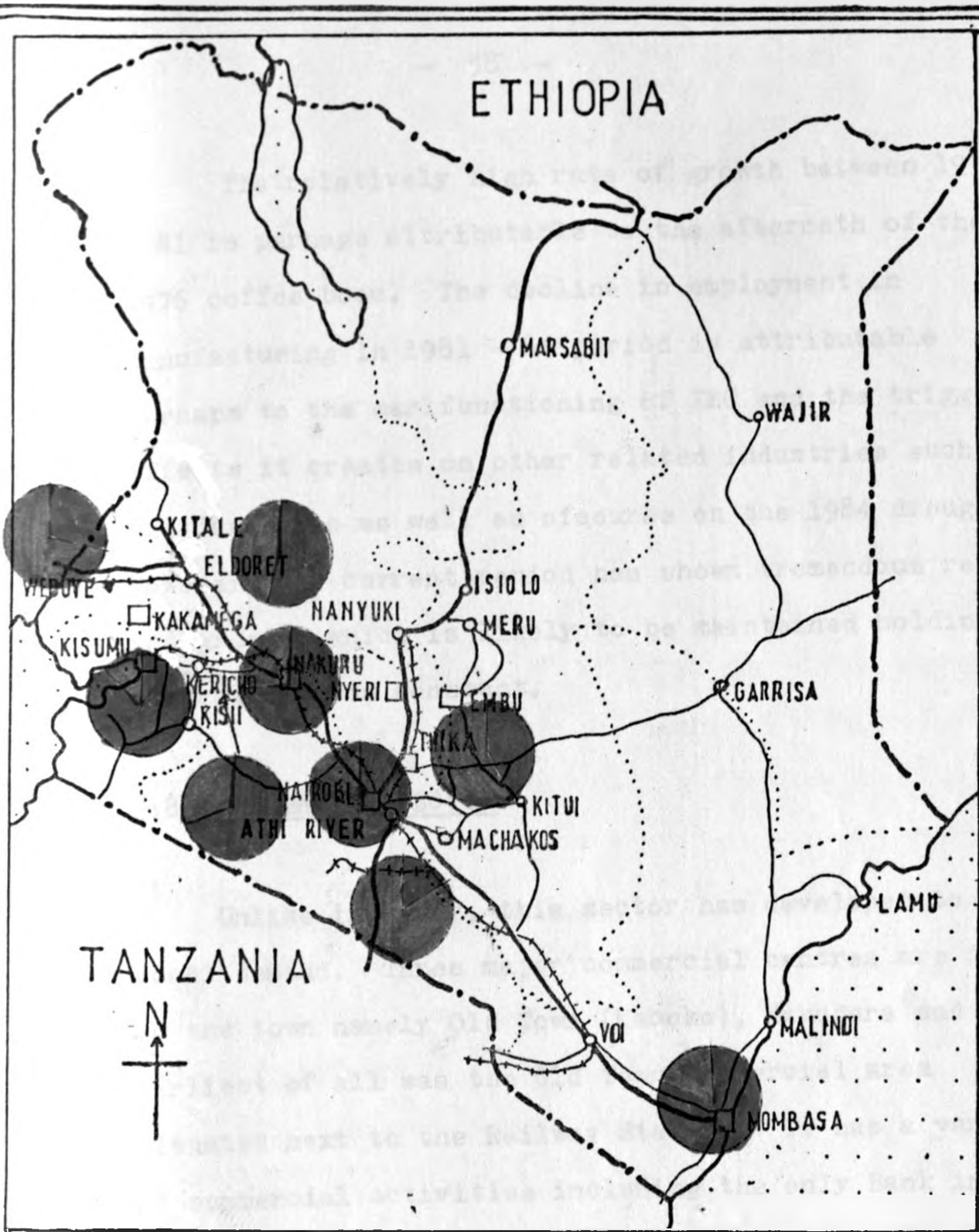
- PRINCIPAL TOWNS
- OTHER TOWNS
- INTERNATIONAL TRUNK ROADS
- - - OTHER ROADS
- + + + RAILWAY LINES
- · - · INTERNATIONAL BOUNDARIES
- · - · PROVINCIAL
- EMPLOYMENT IN MANUFACTURING (1 CM = 10,000)

SCALE: 1:6,000,000



MWAU H M

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 MAP NO.3



MAJOR TOWNS IN KENYA

MANUFACTURING vs OTHER EMPLOYMENT

LEGEND

- PRINCIPAL TOWNS
- OTHER TOWNS
- INTERNATIONAL TRUNK ROADS
- OTHER ROADS
- ++ RAILWAY LINES
- INTERNATIONAL BOUNDARIES
- ... PROVINCIAL
- MANUFACTURING/OTHER EMPLOYMENT

SCALE: 1:6,000,000

0 100 200
KILOMETRES

MWAU H M

M.A (PLANNING)
THESIS 1987/88
MAP NO. 4

The relatively high rate of growth between 1977-1981 is perhaps attributable to the aftermath of the 1976 coffee boom. The decline in employment in manufacturing in 1981 - 84 period is attributable perhaps to the malfunctioning of KMC and the trigger effects it creates on other related industries such as the Tanneries as well as ofcourse on the 1984 drought on set. However, the current period has shown tremendous recovery and growth, which is likely to be maintained holding natural hazards constant.

3:8 COMMERCIAL SECTOR

Unlike industry, this sector has developed to serve local demand. Three major commercial centres are found in the town namely Old Town (Maboko), Makadara and KMC. Earliest of all was the Old Town commercial area situated next to the Railway Station. It has a variety of commercial activities including the only Bank in the Town, a Petrol Station, the Post Office etc. The Makadara commercial area is the most active, owing its success principally on its location at the heart of the residential zones of the town, unlike the old Town which is sandwiched between industrial zone and Railway station area both which hinder its expansion. Besides

well established formal commercial activities, Makadara has a strong informal trading activities, and the towns only market. It serves the sprawling Sophia and Makadara high density residential zones as well as the site and service estate, Embakasi and Portland Junior Staff housing estates.

Lack of a shopping centre for the large population residing in the KMC staff housing and the nearby squatter settlements have prompted growth of the KMC commercial area. This is actually dotted with squatter commercial establishments made of temporary structures and as such lacks proper developments.

Kitengela market situated about 2 km along Namanga Road is a significant first growing commercial centre . It is a significant development centre for industrial, residential and commercial activities.

3:9 HOUSING

Athi River Town has several distinct residential areas that can be grouped into five zones namely KMC zone, Embakasi, Central (makadara), Portland and Old Town (Maroko) area. The KMC zone is a cluster situated at the KMC hill and consisting of KMC staff housing, National

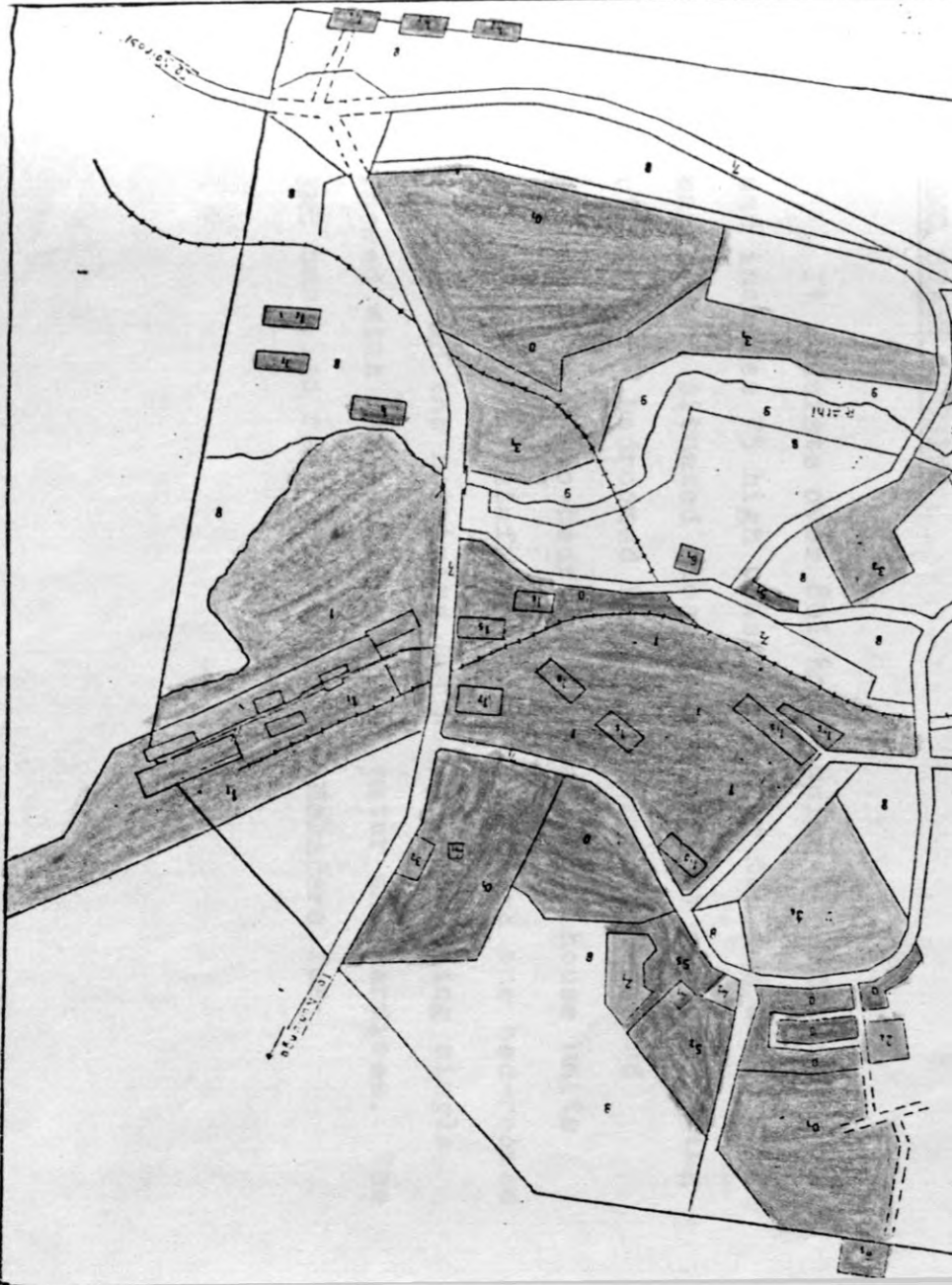
Housing Corporation Eastate, a shanty and squatter settlement adjacent to KMC staff housing, and the high class residential development to the west of the Municipal Council offices.

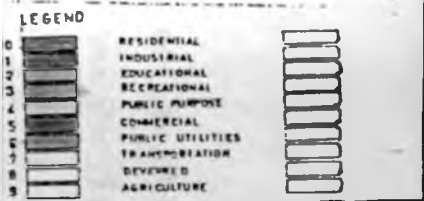
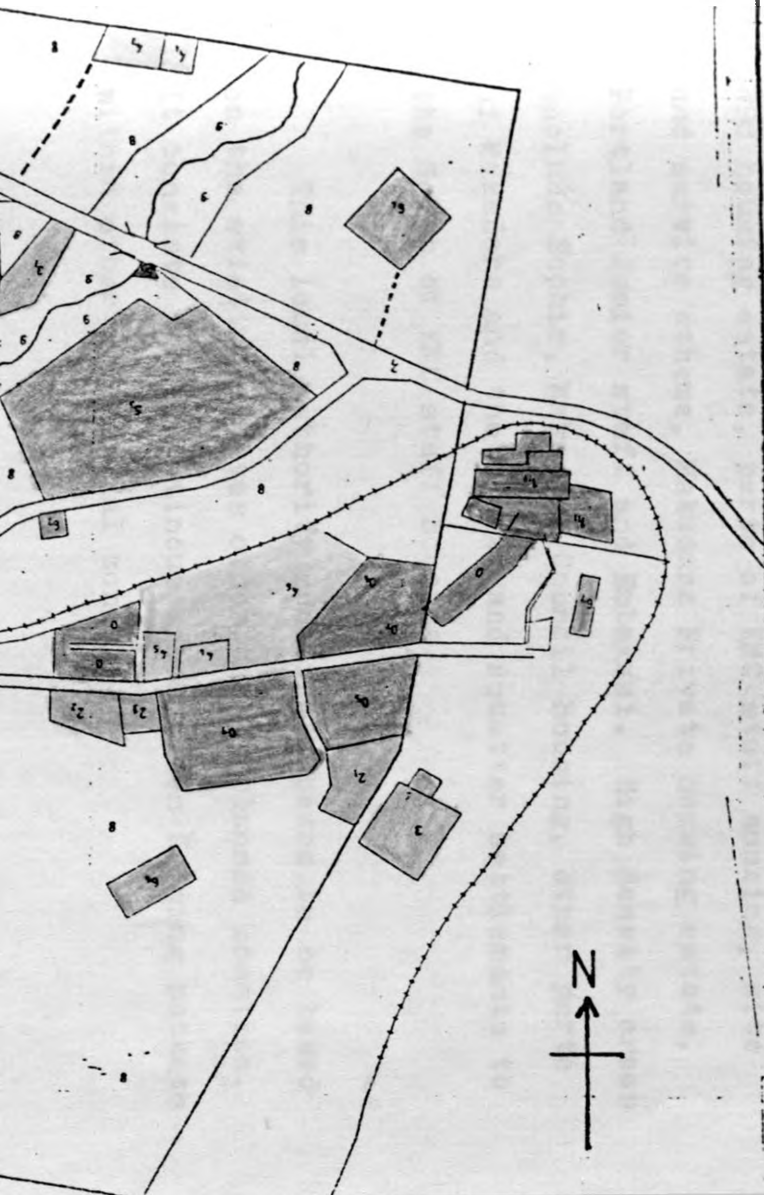
The Central (Makadara) zone consists of residential areas surrounding Makadara commercial area. They include high density low class estates such as Sophia, Makadara, Council housing, "Bondeni" and Makadara Private housing estate. To the South is the Embakasi zone consisting of Embakasi estate and the site and service scheme. These are privately owned largely permanent structured estate, rather extensively developed. This zone holds much hope for future residential development.

The Portland zone consists of two rather distinct staff housing estates situated largely on the Cement industry's land. These are the Portland Junior and Senior Staff housing. The old town zone consists of Commercial-cum-residential developments. It consists of the Mabeko area, Kenya Railways staff housing and a few adjacent scattered squatter settlements such as Kisumu Ndogo. See map No. 5 showing the existing landuse structure of the town.

LOCAL COUNCIL RESIDENTIAL ZONING

The local Authority exercises control of housing developments according to three housing zones, low,





- ZONES SHOWING LAND USE IN ATHIRVVA**
- | | |
|--------------------------|--------------------------------------|
| RESIDENTIAL | COMMERCIAL |
| 0 PORTLAND HOUSES | 11 CRO |
| 1 JUMP | 12 FUTURE BUSINESS |
| 2 STORE | 13 VET RIDES AND SKIN TRADING CENTRE |
| 3 RMC HOUSES | 14 PUBLIC UTILITIES |
| INDUSTRIAL | 15 STORAGE PUMP |
| 1 PORTLAND FACTORY | 16 WATER WORKS |
| 2 REFINO DIE CO | 17 PUMP HOUSE |
| 3 D TARRARIES | 18 SEWAGE DISPOSAL |
| 4 MINING | 19 WATER TOWER |
| 5 LEATHER WORKS | 20 RMC DISPOSAL LAG |
| 6 CORAL FRAMES | 21 TRANSPORTATION |
| 7 AUTO SPRING MAN | 22 ROADS |
| 8 NYVA CHEMICALS | 23 RAILWAY STATION |
| 9 NITRAL CHLORIDE | 24 DEVELOPED |
| 10 WHITE MTS | 25 AGRICULTURAL |
| 11 RMC | |
| 12 DISPILLERY | |
| 13 BOTTLE WASH CO | |
| 14 WASH FILTERS | |
| 15 AIR MACHINERY | |
| 16 WERPET CO | |
| EDUCATIONAL | |
| 17 PPL SCHOOL | |
| 18 MISSION PBL SCHOOL | |
| 19 SEC. SCHOOL | |
| 20 COUNCIL NURSERY | |
| 21 SCHOOL | |
| RECREATIONAL | |
| 22 TOWN PARK UNDER | |
| 23 FOOTBALL FIELD | |
| 24 PUBLIC OPEN SPACE | |
| 25 PROPOSED STADIUM | |
| PUBLIC PURPOSE | |
| 26 SOCIAL HALL | |
| 27 BAPTIST CHURCH | |
| 28 CEMETRY SITE PROPOSED | |
| 29 BURNING GHAT | |
| 30 COUNCIL ANM OFFICE | |
| 31 CHIEF'S OFFICE | |
| 32 POLICE STATION | |



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medium and high density. The high density zone covers the Portland Senior Staff area and the KMC staff housing close to the Factory. The medium density zone covers NHC housing estate, parts of KMC staff housing, site and service scheme, Makadara Private housing estate, Portland Junior staff and Embakasi. High density areas include Sophia, Makadara Council housing, other parts of Makadara and the shanty and squatter settlements to the South of KMC staff housing.

This local authority zonation appears to be based on the existing estates other than a planned zonation. It consists of discontinuous zones often forming pockets within other residential zones.

KMC STAFF HOUSING

It consists over 801 house units for KMC employees, and includes 75 high class units for the company management situated close to the Factory and consisting of 5 four - bedroomed houses, 55 three bed-roomed houses and 15 two-bedroomed houses; 612 house units for lower cadre staff consists of two and one bed-roomed houses and the remaining 114 house units being single roomed with communal sharing of water and services. The KMC has also rented 10 houses in Makadara for

employees not housed by the Company. House structures range from single detached units, double detached units to 3 storey flats. About 50 KMC employees reside in Nairobi in rented, owner-occupied or KMC staff houses. The company has in the past been operating under capacity and so, most of the 114 single roomed units are rented to the local community. Water for the Factory and employees is supplied by the company. It also provides a nursery school, a dispensary, swimming pool, other indoor and outdoor recreational facilities as well as transportation means to over 100 employees children who go to school in Nairobi.

NATIONAL HOUSING CORPORATION ESTATE

This estate consists of 28 one-bedroomed self-contained units. They are managed by the local council though built by the National Housing Corporation in 1970 and handed over to the local council in 1978. They are single or double-detached units.

PORTLAND STAFF HOUSING

Of the 570 employees of the Cement Factory, 150 are not housed by the company. About 60 are housed in Nairobi and 60 more are housed at their Kambini mine near

Sultan Hamud. About 240 employees are housed in 216 house units in Athi River with some sharing houses. The Junior staff housing has 50 two-bedroomed houses, 98 one-bedroomed houses, 60 two-roomed units and 8 single roomed units. A considerable number share water and toilet facilities communally. The Senior Staff housing consists of 3 bed-roomed to 4-bedroomed units and a few 2 bed-roomed units. These are luxuriously spread unlike the Junior staff housing.

Services provided by the company include water supply, swimming pools, TV rooms, several club facilities, football pitches, halls, health facilities (a maternity and a mother-child clinic facility will soon be opened) and transport services to ferry school children daily to Nairobi.

MAKADARA COUNCIL HOUSING

Built in 1955/56 this is the oldest estate managed by the local council. It consists of 240 housing units designed to be 1 bed-roomed units with two house units sharing water and sanitary facilities. Besides housing the general public, it also accomodates many local council employees. They lack electricity connections though have street lighting.

SITE AND SERVICE SCHEME

This is the most recent planned residential development in the town consisting of 148 housing plots though only about a third are already developed. They are designed to be 2 bed-roomed units though cases of flouting this regulation are common especially where an allottee, using his own finances, constructs terrace type of units with plot sharing of services. The estate as of now lacks electricity connection.

MAKADARA PRIVATE HOUSING

This is adjacent to the Makadara Council housing. It has a total of 46 allocated plots and only 12 have already been developed. 22 plots were allocated only recently. The houses consist of 2 bed-roomed self-contained houses.

'ASIAN' HOUSING AREA

This is a planned housing development along KMC Road and currently only occupied by the local resident Asian business community. It has no official name. About 21 plots were allocated and only 7 so far have been developed. House units largely consist of at least 2 bed-roomed units.

RAILWAYS HOUSING

The 150 or so employees of Kenya Railways in the station are housed in staff housing though a few share houses. House units include 1 four-bedroomed house, 1 three-bedroomed house, 5 two-bedroomed houses, 7 one-bedroomed houses and 88 double roomed or single roomed units some of which are temporary structures. Except for a few, most households share services communally.

OTHER STAFF HOUSING

Institutional housing is also supplied, though at a lower scale, by Chloride Metals (K) Ltd which has 14 leased single roomed units all sharing a common water and sanitary facility and with indoor electricity supply. Others industries housing employees include Athi Chalk industry and Athi River Mining with single roomed units. Kenchic and Galot industries also house some of their employees. The Ministry of Transport and Communications, Office of the President (i.e. the Police) and the Ministry of Livestock development (especially the meat training school) house their employees.

EMBAKASI

This is an estate being developed by private developers. Present developments are quite scattered

and differ significantly in the type of structures depending on the private developers capability. There is freehold type of land ownership and so owners have land titles. The estate is so called because the people allocated the plots were allegedly displaced and settled here to give way for construction of Embakasi Airport in Nairobi.

SOFIA CLUSTER

It consists of high density predominantly temporary type of structures and houses the towns lowest income population. Major estates here are Sophia, 'Bondeni' and others nearby with varied names. House units consist principally of terraced single units owned by private developers. The sophia-Makadara area consists of mainly rented units while the 'Bondeni' area has a relatively high incidence of owner-occupied units. Sophia is one of the oldest estates in the town compared to the more recent 'Bondeni' developments. Many Sophia developers hold the so called Temporary occupation licences from the Commissioner of lands. Rates are payable to the Commissioner of lands through the local council. Allottees are allowed to develop permanent structures (though not many are permanent) and have installed water and sanitation facilities. No more TOL's are being given to developers. In 'Bondeni' area, most developers where

allocated "kiosk plots" by the local council. They are not allowed to construct permanent units as in Sophia. Rates are paid to the local council but on approval by the Minister of local government. No more such plots are being allocated though there are many illegal developments going on secretly. The cluster has about 400 "Kiosk plots" and 110 TOL'S.

OTHER HOUSING DEVELOPMENTS

Many squatter residential developments are quite scattered all over the town especially on undeveloped plots and deferred land. Such are used by the local population including the farmers in the town. Notable ones are found near industries e.g. near BarBar Tannery, along Mombasa road, Kisumu Ndogo, Mutonguni, off-Namanga road etc.

3:10 TRANSPORTATION

Athi River Town has rail and road connection to Nairobi and to other parts of Kenya. Maboko and Marimbeti Railway Stations are found within the town. Railway transportation is important for transporting raw materials such as livestock to the Meat Factory and mineral resources to the cement industry. Two international

(class A) trunk roads, Nairobi - Mombasa (A 104) and Nairobi - Namanga - Arusha (A 109) pass through the town and are important in transporting raw materials and manufactured products.

Being barely 30 km from Nairobi, it is within the commuter range of Nairobi and is served by the Nairobi based Kenya Bus Services and a fleet of matatus and Machakos bound buses. See Plate 2. Besides access roads to residential and industrial developments, the town has 3 major roads namely KMC - Makadara - Kitengela, KMC - Old Town - Nairobi road, Makadara - Old Town road over and above the two major international trunk roads.

Plate 2



A KBS bus ferrying travellers to and from Nairobi. Nairobi commuter services extend into Athi River. Such help in transporting workers in either direction from places of work to employment.

3:11 COMMUNITY SERVICES

EDUCATION

There are over 13 nursery schools serving the local population. Most are private and include Makadara Council Nursery School, Baptist church nursery, Ngala nursery, Portland Nursery, KMC Nursery, Kenchic Nursery, etc. The town has 3 primary schools namely Athi River (Makadara) primary school, St. Pauls Primary and Kinania Primary schools. The two secondary schools in the town are Athi River Secondary school and Prison Secondary School. Athi River Academy and Maboko Secondary School are both not operational. Inadequacy of education facilities is manifested by the many school children, especially at Secondary level, going to school at Nairobi.

HEALTH

The town has 7 health establishments four of which are private clinics run by private practitioners. The other three are run by the Athi River urban council (i.e Athi River Health Centre), KMC and Portland Cement Factory. The town lacks maternity and inpatient medical facilities and such are only available at Machakos, over 35 km away or occasionally at Kenyatta National Hospital in Nairobi.

RECREATION

The local council has only one social hall and one playing field. The latter will be moved to another site to give way to industrial developments. KMC and the Portland Cement Factory provide recreational facilities to their employees only as indicated earlier. The general public therefore lack recreational facilities.

WATER

Water supply in the town is by several agencies namely the local council, KMC, Portland Cement Factory, Galot Industries, Alfa Rammer Tannery, BarBar Tannery and Athi River Mining. The local Authority runs one water intake from River Athi, pumping 240 cubic metres of water in 6 hours as well as a grounded borehole. The KMC has two water intakes from rivers Athi and storny Athi and 2 boreholes. It has a much higher installed capacity than the local Authority. It supplies water for its industrial production as well as to its employees who undertake much irrigation. The Portland Cement Factory has one water intake from river Athi and 2 boreholes serving the factory as well as its staff housing areas. In case of shortages, the company obtains water from Nairobi for its workers. The other industries have boreholes or lower capacity water intakes for their production processes.

Water supply in the town is inadequate both in quantity and quality especially that supplied to the general urban population. Mechanical and Technical problems have rendered the local Authorities water supply inefficient in treatment. No desalination is undertaken in the system, as well as in the KMC and Portland Cement Factory intakes hence, water in the town is salty.

SEWERAGE DISPOSAL SERVICES

The local council operates 3 oxidation ponds. These are adequate though they currently require disludging for efficiency. Most industries dispose water into the urban disposal system except the KMC and the Tanneries which have their own disposal systems. The Tanneries have septic tanks. Most wastes are disposed into the River Athi which becomes significantly polluted. Many households in the town use pit latrines and so do not require elaborate waste disposal and treatment processes.

CHAPTER FOUR

DATA ANALYSIS

4:0 INTRODUCTION

This chapter presents an analysis of research data in line with the objectives of the study. It is on the basis of this analysis and in the background of the issues earlier highlighted on other preceding chapters that recommendations will be suggested in the next chapter.

The data is analysed largely on the basis of 4 housing categories; Public, Staff, Private and Site and Service Scheme. Public housing is basically local council managed or owned housing. Staff housing is owned and managed by industrial organizations though the KMC and the Portland Cement Factory are Public Parastatal organizations. The site and service scheme, though owned by private developers has greater public sector involvement and hence is analysed differently from other private housing.

4:1 HOUSING AGENCIES

Section 3:8 of chapter 3 gives a detailed analysis of the various housing estates in the town. It indicates that, housing delivery in Athi River is by various agencies including the local Authority (Athi River Town Council), National Housing Corporation, Institutional

(industrial) staff housing, and private sector housing. The interplay of a public authority (NHC) and Private initiative have led to development of the site and service scheme. The total effect has been a considerable diversity of housing ranging from 4-bedrommed self-contained units to single roomed communal shared services.

The range is notably more pronounced in staff housing with 4 bedroomed to single roomed units and so, in that respect, offers the widest choice though restricts it to employees of the specific industries. Among staff housing areas, the two parastatal organizations, KMC and EAPC offer the greater diversity. The other industries only offer single roomed units unlike the parastatal organizations. The proportion of an industrial workforce housed by the company is higher in the parastatal organizations than in the non-parastatal industrial enterprises. The KMC has the housing capacity to accomodate all its employees, while Kenya Railways has been able to provide staff housing to all workers. KMC employees not company housed are those who opt to reside in owner-occupied (i.e. own) houses in Nairobi or Athi River or those who stay with spouses (not working with KMC) in Athi River Town or in Nairobi.

The Cement Factory houses over 75% of its 570 employees in Athi River or in Nairobi. Non-parastatal

industrial organizations, such as Chloride Metals (K) Ltd., Athi Chalk (stores), and Athi River Mining offer housing to 25%, 5% and 10% of their employees respectively but in shared single roomed units. Except for Kenchic and Galot industries, all other industries do not provide housing to their employees. Chloride Metals (K) Ltd., leases private rental houses for a period of about 2 years for the housed employees and so are not involved in actual housing development. The other industries own the houses which are usually built next to the factory sites.

Local council housing have limited choice and quantity. All houses are 1 bed-roomed units totalling only about 268 houses compared to over 1300 staff housing units and over 3150 private housing units.

Private sector house units range from single roomed units to 3 bed-roomed houses. The single roomed units are of the Terrace type with communal or plot shared services and made of permanent, semi-permanent or temporary materials. They also greatly differ in room sizes. One-bedroomed and two-bedroomed units are also found in parts of the town.

Thus, in terms of the number of rooms and the type of structures, private housing offers a wider choice, followed by staff housing and lastly public housing. With an average of six single roomed units per terrace, the private sector offers the highest number of units, over 3150 units (officially recognised), compared to about 1300 for staff and only 268 under public housing. The combined efforts of any two agencies have contributed about 54 units, 40 of them in the NHC assisted private housing site and service scheme. The remaining 14 are private housing but rented by Chloride Metals (K) Ltd for its employees. Therefore, the private sector has responded to the housing demand with more units. Investors construct houses to make profits. The high proportion of staff housing is greatly due to the KMC, Kenya Railways and Cement Factories initiatives to provide housing to workers. So far, there have been limited collective efforts in housing, mainly confined to about 54 units. Of this, the private sector appears to link better with other agencies especially the public sector (NHC) and companies which rent privately developed houses for employees.

4:2 OCCUPANCY

4:2:1 HOUSEHOLD SIZE

The average household size of the sample population

is about 4 persons with an average room occupancy of about approximately 3 persons. Differences occur from category to category as shown below.

Table 7: Average Household Sizes

Category	Approximate Size
Staff	3
Private	4
Site & Service	6
Public	5

The low household size in staff housing compared to other categories is due to the employers control on house occupation. The industrial management controls and regulates house occupation and are strictly against sub-tenancy or unauthorised sharing. Moreover, the fact that rent payments are not incurred directly by the occupant reduces the chances of one wishing to solicit sub-tenancy so as to save some of the rent. A check-off system is used to collect rents. Except for electricity services paid by Chloride Metals (K) Ltd staff housed employees, no other services are paid by households in staff housing.

Sub-tenancy is quite prevalent in Private and Public housing and this accounts for the relatively high

household size. The higher house size in the site and service scheme (i.e. 2 bed-roomed units) gives more space and is ideal for stable families who can afford the houses. This explains the relatively higher household size. Moreover, increasing sub-division of single plots into single roomed terraces and prevalent sub-letting in such units also partly explains for the increased household size.

At the estate level, difference in household size occurs even within the categories. Lowest household size is reported in Railways housing due to the low average room size (1.29 per household) compared to other staff housing and also due to the strict control in occupation. Authorised sharing of houses in the Chloride Metals (K) Ltd. housing units coupled with the single roomed units accounts for the highest household size, within staff housing estates. Highest household sizes in Private housing are in Sophia (3.89). The site and service scheme has the highest household size in the town (5.5) followed by the NHC estate (5.4) and Makadara Council housing (4.7). These three have large house sizes hence higher household sizes.

Household size is therefore a factor of the house size measured in number of rooms, occupation controls such as those exercised under staff housing, and the

sub-letting tendencies of occupants as well as on family size.

4:2:2 ROOM OCCUPANCY

This is measured as the number of persons occupying a living room. Lower occupancy rates were observed in staff housing schemes and highest in the site and service scheme as shown below.

Table 8: Average rooms and room occupancy

Category	No. of rooms	Occupancy
Staff	1.22	2.34
Private	1.01	3.26
Site and Service	1.58	3.48
Public	1	3.41

For staff housing, this is due to the relatively large house size (no. of rooms) coupled with the strict control on occupation. For the estates, highest occupancy was recorded in Makadara council housing (4), Sophia (3.6), Site and service scheme (3.5) and lowest in EAPC (1.6) and KMC staff housing (1.4). The one bed-roomed units in Makadara Council housing have occasionally, the living room and bed-room rented to different households, hence

the highest room occupancy rates. Moreover, most occupants in Makadara compared to and unlike, say, Sophia, are families other than co-sharing workers. A family with many dependants can withstand a higher room occupancy than a equally big group of non-dependant workers.

The high incidence of owner-occupied units in Bondeni and adjacent Makadara shanty villages accounts for the low room occupancy recorded here compared to the largely rental Sophia units.

4:2:3 LENGTH OF OCCUPANCY

This was measured as the average duration in years the present occupants have been residing in the dwelling unit. As shown in Table 9 this is lowest for the site and service because it is a recent, infact, incomplete project. Diversity of choice partly explains the length of occupancy in other schemes. The wider the choice of different house units one can move to, given his income capability and affordability, the more likely one will move to another place. This will also depend on terms of ones occupation, employment as well as tastes.

Private housing has many estates with different structures ranging from;temporary, semi-permanent to

permanent; terraces to detached double units; single roomed to 3 bed-roomed; and rents varying from Ksh. 50 to about Ksh. 250 as well authorised and unauthorised developments etc. All these give a wider choice of housing enough to accommodate diverse employment terms ranging from employed, casuals, temporary to permanent, hence high mobility within this sector leading to low occupancy durations.

Plate 3



Makadara Council Housing. The notable repairs on the walls are a sign of the deterioration of housing in the estate.

Plate 4



A characteristic terrace in Sophia and Bondeni area. It consists of a long row of back-to-back single roomed units made of temporary building materials. At the back is a toilet/bathroom facility for the households occupying the terrace..

Plate 5



House types in the site and service scheme. Notice the common two-bedroomed units and the unauthorised terraces in the estate.

Plate 6



Staff Housing Flats of the KMC. This is a well planned estate with better provision of services.

Table 9: Length of occupancy

Category	Average Years
Staff	5.97
Private	3.04
Site and Service	1.33
Public	8.30

Promotions, firing and recruitment of new employees have direct impacts on staff housed households and this explains their low occupancy durations compared to Public housing which is entirely depended on the households

ability to pay the rent.

The factors affecting the duration of occupation of a house therefore includes changes in one's income level, availability and diversity of choice acceptable to households income and place of employment.

4:3 HOUSE STRUCTURES

Based on the type of wall building materials, three major categories of house structures were observed, namely Temporary, Semi-permanent and Permanent. See Table 10.

Table 10: Type of Structures (%)

Category	Temporary	Semi-Permanent	Permanent
Staff	9	-	91
Private	66.7	11.7	21.6
Site & Service	-	-	100
Public	-	-	100
Total	30.8	5	64.2

Source: Sample data.

Most temporary structures are built by the Private sector who are the prime beneficiaries of the TOL'S and

'KIOSK' plots and ofcourse due to the many unauthorised developments undertaken by the sector, who mainly construct temporary and semi-permanent structures. These are mainly single roomed terraces.

The permanent 21.6% of privately owned houses are in Embakasi where plot woners hold land titles or in Sophia where through the TOL'S leaseholds, they were allowed to erect permanent buildings. Semi-permanent structures are also found in such areas. Temporary buildings in staff housing are found in Kenya Railways housing where buildings of GCI walls were allegedly erected to accomodate employees on 'transit' other than resident workers, though now house resident workers.

Permanent buildings account for all site and service scheme and public housing units and about 91% in staff housing and range from 3 storey flats, single or double detached non-storey units, mansionettes to terraces.

Type of wall structures therefore depends on the land tenure system, building regulations as well as the plot owners ability to build better structures where given a non-restrictive land tenure system.

All except Private housing have cemented or tiled floors. These account for 73% in Private housing, the rest being of earth. Table 12 indicate the materials used in roofing.

Table 11: Wall Materials (%)

	Blocks	Concrete Slabs	Sheets	Timber
Staff	81.8	9.0	9.1	-
Private	30.6	-	47	22.4
Site & Service	100	-	-	-
Public	100	-	-	-

Table 12: Roofing Materials (%)

	Tiles	Sheets	Asbestos	Ceiling
Staff	50	36.7	13.3	43.3
Private	-	100	-	3.9
Site & Service	-	100	-	100
Public	80	-	20	20

Staff housing is best provided with modern roofing materials (63.3%) and relatively many houses have ceilings. Public housing has also good roofing materials

though only 20% have ceilings. Private housing has relatively poor roofing materials of predominantly GCI sheets and only 3.9% having ceilings.

Except in Private housing, all doors are made of timber and sometimes reinforced with metal bars. 19.6% and 3.9% of doors in Private housing are made of GCI roofs and old drum sheets respectively, the rest being made of timber. Table 13 shows that private housing have poor window materials with 11.8% having no windows at all. The site and service scheme and public housing have best window materials.

Table 13: Window Materials (%)

	Glass	Timber	GCI Sheets	None
Staff	90.6	9.4	-	-
Private	13.7	50.9	21.6	11.8
Site & Service	100	-	-	-
Public	100	-	-	-

The above tables indicate that, Private housing areas have the poorest building materials for floors, walls, roofs, windows and doors. As such, conditions of house units are relatively poor and do easily deteriorate than in others estates.

4:4 SERVICES

WATER SUPPLY

Table 14 presents the water supply structure in the town.

Table 14: Water Supply

	Household	Plot	Communal
Staff	37.5	15.6	46.9
Private	5.9	59.8	35.3
Site & Service	75	25.0	-
Public	68	32.0	-
Total	46.4	33.1	20.5

Household water connections are most prevalent in the site and service scheme and in Public housing areas, but lowest in private housing where communal and especially plot supply dominates. Plot supply is where a single terrace/plot with several households share a water point in contrast to communal supply where several terraces or plots or the general community share a water point. Communal water supply is also found in staff housing areas but not in the KMC housing estates.

About 31.9% of households in Private housing buy water daily and this amounts to 13.3% of the sample population. Such households have no water point provided for them or, it is too far so they have to purchase it daily from water sellers.

Table 15 indicates the number of persons sharing a water point as well as the mean distances to water points. On average, 42 persons share a single water point in the town from a mean distance of 28.6m. Sharing is least in public housing due to the lower households size than, say, compared to the site and service schemes. It is strikingly higher in private housing where it is over three times as much as in staff housing, and about twenty times as in public housing. This is because of the high incidence of plot and communal sharing of water coupled with the high population densities in private housing.

Table 15: Persons sharing and distance to Water Point

	Persons	Distance (M)
Staff	35	18.5
Private	118	95.9
Site & Service	12	0
Public	6	0
Average	42	28.6

Mean distances are also high in private housing by about 5 times as in staff housing, the only other housing areas with significant distances to water points. These distances are due to plot and communal supply.

SANITATION

Table 16 shows the supply of toilet and Bathroom facilities as well as the mean distances and number of persons sharing them. Communal use of these services is only observed in private and staff housing. Distances and persons sharing them are greater in private housing than in the other areas. It is only in private housing where there are households without toilets (11.8%) and Bathrooms (23.5%). Public housing are the best supplied.

Data was also analysed on the type of toilet and Bathroom facilities in use in town. About a third of the toilets are pit latrines, 5% have no toilets while the rest have flush toilets. Pit latrines are found only in private housing where they account for over 80% and only 7.8% have flush toilets. All other estates have modern flush toilets. The site and service scheme and public housing areas have all tap and shower fixed bathrooms but which only account for 5.8% in private housing and 59.4% in staff housing. About 66.7% of Bathrooms in private housing are cubicles without water

	TOILETS						BATHROOM					
	Household	Plot	Communal	None	Mean Distance	No. Sharing	Household	Plot	Communal	None	Mean Distance	No. sharing
STAFF	65.6	15.6	18.8	-	18.5	34.7	65.6	15.6	18.75	-	18.5	34.7
PRIVATE	7.8	72.5	7.8	11.8	28.1	52.4	5.9	64.0	5.89	23.5	26.6	60.6
SITE & SERVICE	58.3	41.7	-	-	-	11.5	58.3	41.7	-	-	-	11.5
PUBLIC	20	80	-	-	-	6.7	20	80	-	-	-	4.4
AVERAGE	30.8	55.8	8.3	5	11.7	26.3	34.9	50.3	6.1	5.8	11.3	27.8

connection, 21.6% have no Bathrooms at all while about 3.9% have taps connections only. About 15.6% of Bathrooms in staff housing have no tap connections while 28.1% have taps only. Therefore, in toilet and Bathroom facilities, the public and site and service scheme are best served while the private housing areas are most poorly served.

Sharing and distances to these services is also highest in private housing as shown in Table 16. This is lowest for public housing and in site and service scheme.

ELECTRICITY SUPPLY

Although the town has electricity supply from the National Grid, 84.2% of all households visited had no electricity connections. All private housing and the site and service scheme have no electricity supply. Only 43.75% of staff housing and 20% of public housing has domestic electricity supply. Public housing however, has street lighting. Thus, staff housing are best supplied with electricity. As a result, most households use paraffin, charcoal or firewood for cooking and lighting.

OCCUPATIONS

Employment statistics were given in section 6 chapter 3. This section presents employment data obtained through primary (questionnaire) data. Table 17 below indicates the occupation profile of the sample population.

Table 17: Occupations (%)

	Employed	Unemployed	School pupils	Below school age
Staff	48.9	9.1	28.4	13.6
Private	35.8	19	26.8	18.4
Site & Service	17.7	17.7	33.8	30.8
Public	31.4	11.6	44.6	12.4
Average	33.5	14.4	33.4	18.8

Thus, only 33.5% of the population is employed and therefore a dependancy ratio of 1:3. Unemployment is about 14.4% while children account for over half (52.2%) of the total population. As would be expected, unemployment rates are lowest in staff housing. It is highest in private housing where populations are unstable and have poor types of employment. The large and relatively stable families in the site and service scheme account for the

high proportion of school and non-school going children who account for 64.6%. In public housing, this is about 67%.

4:5 EMPLOYMENT, INCOMES AND HOUSE RENTS

4:5:1 TYPE OF EMPLOYMENT

In 1985, Athi River had about 2,763¹ workers in wage employment, 2,310 (83.6%) of whom were employed in manufacturing. According to the field data, in 1987, manufacturing employed over 3200 workers. The household questionnaire indicated that, manufacturing employed 59.2% of all workers in the town as indicated in table 18 below. Various types of self-employment come second, followed by local Authority and the Government. About 4.8% of the working population are engaged mainly in farming as the major livelihood. This prominence of manufacturing is an indication of the towns dominant manufacturing sector.

Table 18: Type of Employment

	Industry	Self-employment	Local Authority	Government	Agriculture
Staff	100	-	-	-	-
Private	55.8	26.9	3.9	1.9	11.5
Site & Service	50	16.7	18.3	25	-
Public	24.1	21.1	39.9	13.8	-
Average	59.2	18.4	11.2	6.4	4.8

¹ Statistical Abstract, 1985, Republic of Kenya. Ministry of Planning and National Development.

Manufacturing is, of course, most prominent in staff housing although Kenya Railways, is included in this category. Self-employment is most pronounced in private housing areas in such trades as hawking, bar and hotels, petty shops etc. In public housing, the high proportion of workers by the local Authority is because the local council houses most of their employees in its housing estates. Agriculture, mainly subsistence, is a major livelihood to 11.5% of the households in private housing. This is an occupation for workers who fail to get proper or other employment. Their low incomes only allow them to rent houses in the cheap private housing or simply squat on the farms.

A large proportion of the working population are on permanent employment basis especially those in staff, site and service and public housing where they account for 100%. In private housing, permanent employees are only 53.8% of the working population and 32.7% and 13.5% are in temporary and casual employment basis respectively. Cheaper housing, though of low quality, is more affordable by workers on temporary and casual employment, hence such are only confined in private housing. Staff housing is only given to those on permanent employment basis.

4:5:2 INCOMES

In 1985, manufacturing earned the town K£ 2,567,600 which was 52.6% of the total K£ 4,881,800 earned by the town, an increase of 32.5% from K£ 1,937,600 in 1984. Table 19 below indicates various wage groups of workers expressed in percentages over the two year period.

Table 19: Workers Wages, 1984 - 85

Wage (Ksh)	1984	1985	Average
< 700	6.0	14.4	9.4
701 - 999	33.9	20.7	28.6
1000 - 1499	23.7	19.9	22.1
1500 - 1999	13.2	11.8	12.6
2000 - 2999	5.4	13.9	8.9
3001 - 5999	14.4	12.3	13.6
6000+	3.6	6.9	4.8

Source: Statistical Abstract, 1986.

This table indicates that 38% of the workers earn less Ksh 1000, while 66.1% earn less than Ksh 1500, 72.7% earn not more than Ksh. 2000; hence most are low income earners.

Table 20 indicates categories of household incomes in the town as obtained from field data.

Table 20: Household Incomes

Income (Ksh)	%
<700	7.1
701 - 999	17.1
1000 - 1499	25.7
1500 - 1999	17.1
2000 - 2999	11.4
3001 - 5999	20.4
6000+	1.4

Source: Household Survey

About a quarter of the households earn less than Ksh. 1000, while over half earn less than Ksh 1500. Mean household incomes were also investigated through the household survey. This indicated mean household incomes of Ksh. 2,076 in staff housing areas, Ksh. 1165 in private housing, Ksh 3,029 in site and service scheme and about Ksh 3,439 in public housing areas, thus being lowest in private housing, especially in Sophia estate with a mean monthly household income of Ksh. 896 though incomes as low as Ksh 450 were reported in the estate. Lowest income reported in the town was Ksh 350 per month in Embakasi estate.

Apart from the staff housing, the National Housing Corporation estate has for a long time been the only rental estate for higher income households. Incidentally, highest incomes were reported here with a minimum of Ksh. 2,500 and a maximum of about Ksh. 8,200.

A per Capita analysis of the incomes suggests, monthly per capita incomes are lowest in private housing, followed by staff housing and highest in the site and service scheme as shown in the table below. As a result, purchasing power is lowest in private housing areas and highest in the site and service scheme.

Table 21: Per Capita Incomes in the Town (Ksh)

	Mean Income	Population	Per Capita Income
Staff	2,075.90	88	23.60
Private	1,164.50	190	6.10
Site & Service	3,029.20	68	44.55
Public	3,439.10	121	28.40

4:5:3 HOUSE RENTS

Table 22 indicates the minimum, mean and maximum house rents in the various housing categories. Mean

rents are lowest in private housing followed by a close tie of public and staff housing and highest in the site and service scheme.

Table 22: House rents (Ksh)

	Minimum	Maximum	Mean
Staff	175.00	800.00	343.70
Private	50.00	700.00	184.10
Site & Service	250.00	1200.00	672.20
Public	125.00	450.00	343.10

The minimum rent in private housing (Ksh 50) is charged for a rented shack in a farm where the household is engaged in farming. The low rent in public housing of Ksh. 125 is charged by the local Authority's staff housed employees who therefore pay with a concession from their employer. Rents for the single roomed units of staff housed Chloride Metals (K) Ltd. employees account for the minimum rent of Ksh. 175 in staff housing; while single roomed unit terraces account for the low rent of Ksh. 250 in the site and service scheme. Highest rents in public housing are charged in the 1 bed-roomed units of the NHC estate while the Ksh. 1200.00 is the normal rent for the 2 bed-roomed houses in the site and service scheme.

Table 23 and 24 below indicate the proportion of household incomes spent on house rents in the four categories as well as in selected estates.

Table 23: Income expenditure on housing rent

	A Mean Income	B Mean rent	B/A (%)
Staff	2,075.90	343.70	16.6
Private	1,164.50	184.10	15.8
Site & Service	3,029.20	672.20	22.2
Public	3,439.10	343.10	10.0

Table 24: Income expenditure on house rents at estates

Estate	A Mean Income	B Mean rent	B/A %
Staff; Chloride (K) Ltd	3,060.00	175.00	5.7
Railways	1,302.80	235.00	18.0
Private; Sophia	896.90	195.00	21.8
Site & Service	3,029.20	692.20	22.8
Public; NHC	5,220.00	450.00	8.6
Makadara	1,658.30	233.60	14.1

It is evident that, private housing, including the site and service scheme have the highest expenditure of household incomes on house rent. Generally, public

housing has lower household income expenditure on house rent, though in some cases, staff housing e.g. Chloride Metals (K) Ltd. has lower values.

Table 25 below represents the expenditure of income on house rents specifically by the industrial workers in the various housing categories.

Table 25: Income expenditure on House rents by Industrial workers.

	A Ave. Income	B Ave. rents	B/A %
Staff	1,820.30	409.80	22.5
Private	1,337.50	189.20	14.1
Site & Service	1,680.00	440.00	26.2
Public	2,020.60	253.10	12.5

Again the proportions are higher in the site and service scheme and lowest in public housing, hence there are fewer industrial workers residing in the site and service scheme. Private housing also has a low percentage, explaining why many industrial workers reside in private housing. Public housing is much limited in town. Although relatively more is spent on staff

housing, the houses are better in quality and in any case, in many instances a worker will have no choice if a company house is vacant. One has to take up the house or forfeit his house allowance.

Analysis based on household data on industrial workers indicated that they pay a mean house rent of Ksh. 353. The employees questionnaire data gave a fairly comparable mean rent of Ksh. 295. The household data indicates that, the industrial workers will more easily afford both staff (mean rent Ksh. 343.70) and public housing (343.10) and especially private housing (mean rent Ksh. 189.20), though from the employees questionnaire data, most workers will only afford private housing.

Besides, analysis of employees questionnaire data indicated that industrial workers reside in houses of approximately 1.28 living rooms which closely estimates the number of living rooms in private housing areas as obtained through the household questionnaire as shown below. Nearest to private housing is staff housing which houses mainly industrial workers.

Table 26: Ave. living rooms

	No.
Staff	1.47
Private	1.16
Site & Service	2.16
Public	1.58

4:6 PLACE OF EMPLOYMENT AND RESIDENCE

A large proportion of the workers involved in manufacturing industry reside in private housing as shown in Table 27. Excluding the KMC and EAPC workers, staff housing accomodates only about 14.47% of the workforce, but about 31.5% if they are included. As such, the private sector is the major supplier of housing for most industries in the town. The site and service scheme accounts for only 0.3% of the workers involved in manufacturing and this is because of the high rents. The 0.3% are mainly staying in the cheaper single unit terraces in the site and service scheme which have only come about due to improper development control since only 2 bed-roomed units are authorised in the estate.

Table 27: Residences of Industrial Workers.

Agencies	%
Staff	14.47
Private	73.35
Site & Service	0.33
Public	4.93
Nairobi	6.91

Interviewed at their places of work, the industrial workers indicated they pay average monthly rents of Ksh 295, a figure which only fits well in private housing where the mean rent is Ksh. 189. Public housing has mean rent of Ksh 253.10, still within what the employees pay but due to a limited number of public housing, fewer industrial workers stay in public housing. They mainly stay in the private housing areas, though may stay in the few site and service scheme terraces with single roomed units with monthly rents of Ksh. 250 though again of limited stock.

Field data indicated that 89.8% of the workers interviewed worked in the town while about 11.2% worked in Nairobi. Thus, 11.2% of Athi Rivers residents work in Nairobi which is a desirable trend in the urban decentralization process. None of this proportion reside in staff housing areas. About 9.6% of the workers residing in private housing work in Nairobi while about 41.7% of workers in site and service scheme work in Nairobi. For public housing, this is about 13.8%. Thus, the proportion of Nairobi workers of the total resident population is higher in the site and service scheme followed by public housing and lastly in private housing. However, of the total population of Nairobi workers, 35.7% reside in private housing and an equal proportion in the site and service scheme, while only about 28.6% reside in public housing. Thus, though the site and service scheme and private housing are

equally important in housing Nairobi workers, the latter is also more important in solving the local housing problems.

Table 28: Places of Work

	Athi River	Nairobi
Staff	100	-
Private	90.4	9.6
Site & Service	58.3	41.7
Public	86.2	13.8

The proportions of industrial employees residing in Nairobi was about 6.91% as compared to 11.2% of Athi River residents working in Nairobi. Thus, Athi River houses more Nairobi employees than Nairobi houses Athi River workers. The proportion of workers housed in Nairobi varies from industry to industry. Athi Chalk, a mining industry mainly engaging manual labourers has no workers staying in Nairobi. Infact, industries, mainly employing unskilled workers have low proportions staying in Nairobi. Industries with large proportions of employees housed in Nairobi include Coral Paints 41.46%, Werrot & Co. Ltd. 32.69%. Nova Chemicals 13.3% and Mohan Meakin 10.4%. The KMC and EAPC have 9.3%

and 10.5% of their workers residing in Nairobi, mainly in company owned/leased houses or in owner-occupied houses in Nairobi.

Most proprietors and top management of industrial enterprises, who usually have private cars, reside in Nairobi. EAPC and KMC have staff houses in Nairobi. Moreover, many industries have Head offices in Nairobi and so the top management mainly work and reside in Nairobi. The availability of cheaper transportation means encourages residence in Nairobi. KMC, EAPC, Coral Paints and Werrot & Co. Ltd., the leading industries in this respect, offer staff vans for transporting workers to and from Nairobi. Such movements are contrary to the decentralization policy.

Workers residing in Nairobi were asked to give reasons of residing in Nairobi. The reasons given are tabulated below in frequencies expressed as percentages of responds.

Table 29: Reasons for residence in Nairobi

Reason	% Score
Join Friends or Relatives	41.0
Children are in School in Nairobi	20.5
Lack of Houses in Athi River	10.3
Occupies own house in Nairobi	10.3
Unfavourable environment compared to Nairobi	10.3
Expensive houses in Athi River	5.1
Attends training courses in Nairobi	2.6

What emerges is that, factors explaining why labourers commute to Nairobi are mainly due to Athi Rivers proximity to Nairobi. The main reason given is that, workers commute to Nairobi to join relatives and friends, a factor which suggests that the two urban centres are very much related and Athi River can be seen as a place of employment while Nairobi as a place of residence thus as a single employment - residence matrix.

Inadequate educational facilities is a constraint to housing. About 23% of the responds indicated that commuters prefer to stay in Nairobi so that children benefit from educational facilities offered in Nairobi. Evidence of this is the fact that, KMC and EAPC, in response to shortage of educational facilities, offer transport facilities to Nairobi for children of their employees. The main shortage is mainly in post-primary education specifically secondary and other commercial training institutions.

Over 10% of the responds suggested that lack of good housing in Athi River, necessitates workers to commute from Nairobi. This affects particularly the medium and high income groups which have no rental housing schemes in the town.

Members of such income groups commute to Nairobi and reside in South B, South C, Southlands and Kileleshwa. A few Asians have built owner-occupied houses in the town. An equally large proportion own houses in Nairobi and hence prefer to stay there than rent houses in Athi River.

Also, 10% of the respondents argued that they stay in Nairobi because it is more lively and has more entertainment facilities in contrast to Athi Rivers 'boring' and bad (hot) climate. Expensive housing was also cited as a factor explaining commutance to Nairobi. For example, single roomed units in Athi River especially in Private housing areas have average rents of about Ksh. 184 and may rise as high as Ksh. 300 yet these houses are mainly of temporary building materials, the equivalents of houses found in Nairobi estates, such as Mathare, Kibera, Kawangware, but selling at cheaper rents of Ks. 70 to 150 or so. Moreover, the availability of staff vehicles, thereby slashing transportation costs, encourages many low income workers to commute to residences in Kibera, Bahati, Eastleigh and such estates in Nairobi; estates that are by no means structurally superior to Sophia, Mutonguni, or Embakasi in Athi River.

In conclusion therefore, factors explaining why workers commute include lack of good houses for medium

and high income workers, expensive housing, lack of education and recreational facilities, easy transportation to Nairobi offered by some industries, preference for owner-occupied houses in Nairobi instead of rented housing in Athi River, as well as joining friends and relatives staying in Nairobi.

4:7 INVOLVING THE COMMUNITY IN PLANNING

This section outlines the opinions of the local community on; the sizes of houses that would satisfy the households, the maximum rents payable for rental and tenant-purchase houses, as well as on the major development problems and needs of the community, causes of the housing problem and the various ways of alleviating it. This forms a suitable basis for planning with the community.

4:7:1 HOUSE SIZE AND RENTS

Inquiries were made on the willingness for extra number of living rooms that would satisfy households. Table 30 below shows the present and extra number of required rooms, according to the various categories.

Table 30: Required house sizes

	Present	Extra needed	Total demand
Staff	1.22	1.98	3.2
Private	1.01	1.41	2.61
Site & Service	1.58	0.66	2.24
Public	1	2.12	3.12

This actually depended on the present rents and the income levels. The table indicates that, the extra rooms needed is higher in public housing which also has the lowest household income expenditure on house rent both by the general urban community and the industrial workforce in particular as was shown earlier in tables 23 and 25.

Next is staff housing. The households felt that they were paying too much and needed extra more living rooms. The generally large 2 bed-roomed houses in the site and service scheme fairly satisfy the housing needs of the residents, and hence has the lowest expressed demand. Also, the high rents (Ksh. 1200) contribute to restricting further demand for more living rooms. Private housing had the lowest requirement and this is essentially a factor of income. The low incomes do not warrant need for extra living rooms.

Asked about the rents the households are willing to pay for better rental houses and for tenant-purchase houses, it became evident that, occupants are willing to pay more for tenant-purchase houses than for rental houses, as shown in Table 31 below. The Table also shows percentage of household income that can be committed to rental housing.

Table 31: Affordable house rents

	Current	Better rental House	% of Income	Tenant-Purchase
Staff	343.70	469.70	22.6	490.90
Private	184.10	232.60	19.8	303.60
Site & Service	692.20	945.50	31.2	1020.70
Public	385.80	614.20	17.9	827.60

Therefore, for houses to be easily affordable, they must have minimum house rents of Ksh 232.60 to serve the majority of households. It should, however, not exceed Ksh. 945.50 if it would effectively accommodate many households of the present income levels. Tenant-Purchase housing that would effectively cater for the housing need of the local population should have monthly instalments ranging from Ksh. 303.60 to about Kshs. 1020.80.

However, assuming that households can spend up to

25% of income on rent, then the following rents are payable in the town, ranging from mean rents of Ksh. 291.10 in private housing areas to Ksh. 859.80 in public housing areas.

Table 32: Income vis rents payable

	Income	Rent Payable
Staff	2,075.90	519.00
Private	1,164.50	291.10
Site & Service	3,029.20	757.30
Public	3,439.10	859.80

4:7:2 DEVELOPMENT NEEDS

The local community was involved in identifying the major problem areas and development needs in the town. This is represented in Table 33. About 59% of all households interviewed indicated that there is a housing problem in the town. The causes and nature of the housing problem are illustrated in Table 36. Following housing was; water, Health services, employment etc.

Table 33: Major development problems/needs

Priority Problem/Need	% of Respondents
Housing	59.2
Water	49.2
Health	32.5
Employment	30.0
Education	17.5
Sewerage & Sanitation	13.3
Roads	10.0
Street lighting	8.3
Plots (shops & houses)	3.0
Security	0.1

Asked to rank the problems in terms of magnitude, the four major problems are shown below in Table 34.

Table 34: Problems ranked in order of magnitude

Problem	Rank (responds)			
	1	2	3	4
Housing	30	22	13	1
Water	29	35	8	2
Health	15	6	11	3
Employment	18	5	5	1

Again, housing was ranked first more than any other problem, followed by water, health and employment.

Interestingly, water, the second major problem (Table 33), was ranked second more times than in the first rank.

Employment was ranked first more times than health and so, in this respect, taking the third position.

Further analysis based on the various housing categories indicates the major problems in staff housing areas are; water, health, housing and education in that order. In private housing (See Table 35), the four major problems are; housing, water, employment and health. In the site and service scheme, they are; water, housing, health and education. Finally in public housing, the major problems are; housing, sewerage and sanitation, employment, water and health. With relatively better house units/shells, staff housed households cite services as the major problem, while houses take a third position. sanitation problems take prominence in public housing. due to the broken or poorly maintained systems.

Table 35: Priority Needs by Estates (% of respondents)

Problem	Staff	Private	Site & Service	Public
Housing	56.3	56.9	50.0	72.0
Water	62.5	56.9	58.3	20.0
Health	62.5	19.6	33.3	20.0
Employment	12.5	49.0	0.0	28.0
Education	21.9	15.7	33.3	8.0
Sewerage & Sanitation	3.1	9.8	0.0	40.0
Roads	6.3	5.9	33.3	12.0
Street lighting	6.3	7.8	0.0	12.0
Security	0.0	1.9	0.0	0.0

With the large proportion of school going children in site and service scheme, coupled with the shortage of educational facilities, education is relatively a major development concern here than in other areas. Transport services are available in staff housing areas to transport school children to Nairobi daily. Employment is notably a greater problem in private housing which were earlier found to have high unemployment rates as well as many people on temporary and casual employment.

4:7:3 CAUSES OF THE HOUSING PROBLEM

In order to establish the nature and causes of the housing problem, household respondents were involved. The causes of the problem given are tabulated below.

Table 36: Causes of the Housing Problem

Cause	Frequency Score (%)
High rate of industrial growth	18.3
High population growth rate	18.3
Lack of Control in housing development	15.0
Kiosk and TOL temporary housing programmes	9.2
Inadequate Council Housing	9.2
Inadequate Staff Housing	5.8
Lack of land	5.8
Low effective demand	4.1
High rents and low house allowances	3.3
Undeveloped plots	0.8
Lack of Finance	0.8

It is evident that, high rate of industrial growth accompanied by the largely resulting high population growth rate are the major causes of the problem. The community also felt that lack of control in housing development considerably leads to erection of poor housing structures, largely of temporary building materials. This is compounded by the local Authority's authorised kiosk licenses and TOL licenses. Although the latter may allow plot allottees to build with permanent materials, the temporary licensing system which requires yearly or so renewals discourages many from building permanent structures. Allottees holding kiosk licences are not at all allowed to build permanent structures. The local Authority was also cited as being inefficient in the supply of housing. It has only two housing schemes with limited capacity. The many industrial enterprises locating in the town and which are totally unconcerned with housing of employees was also cited as a cause of house shortage especially given the background of the large staff housing schemes owned by KMC, EAPC and a few other industries. Other causes identified included lack of land for development. Other respondents felt that, poor housing is due to low effective demand of good housing arising from low incomes hence many people resort to low rent (cheap) private housing largely consisting of temporary single roomed structures. It is also for this reason that few industrial workers reside in the site

and service scheme (except in the unauthorised terraces in the scheme) due to its prohibitive rents. Expensive housing was therefore also noted as a cause of the problem. Many undeveloped plots and deferred pieces of land accompanied by lack of adequate finance to develop better housing were also cited as causes of inadequate housing.

4:7:4 WAYS OF ALLEVIATING THE PROBLEM

The community suggested strategies of alleviating the inadequacy of housing. A strong desire was that, the local community should be availed with more plots for private residential developments. This was in an apparent local community appreciation of the role of private housing in solving the housing problem but which is constrained by inadequate plots. With comparatively cheap public and staff housing of relatively good quality, an important strategy was to increase local council and staff housing including greater National Housing Corporation assistance. Desire was expressed for more development control so as to regulate type of houses being built for the good of tenants. Others suggested that building regulations in the town should be relaxed e.g. allowing plot allottees with kiosks licences to build permanent houses. Other suggested strategies included more site and service schemes and rent control in private

housing, construct affordable good housing, increased government assistance to local council, establishment of community housing co-operatives and repossession and reallocation of undeveloped plots. Finally, it was also suggested that people should be allowed to own more than one plot since, as per regulations, a person can only be allocated one plot in a housing scheme e.g. the site and service scheme. Reducing rural-urban migrations was also cited as a possible remedy of the housing shortage.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5:0 INTRODUCTION

This chapter gives an outline of the major research findings in line with the objectives of the research and makes conclusions emanating from such findings. Finally it makes recommendations on housing strategies for greater industrialization and identifies areas of further research.

5:1 SUMMARY OF FINDINGS

Athi River's location within Nairobi's commuter zone (30 Km) has enabled commuters to travel either way in pursuit of shelter and places of employment. For this reason, the town functions as an industrial and residential suburb of Nairobi, both important factors of its faster growth. Athi River's rural hinterland has substantial mineral and agricultural resources potential which support its mining and agricultural processing industries. The town's proximity to and thereby falling within Nairobi's investment industrial location matrix associated with the availability of market, industrial support infrastructure and services have propelled the town to greater levels of industrialization.

Industrial growth in the town has been phenomenal, rising from a single manufacturing industry in 1952,

2 in 1957 to over 17 enterprises currently. Premises of 3 more industries are already under construction and many more have had their proposals accepted for implementation. Since 1973, the rate of growth of the industrial labourforce has been expanding at an annual average of about 11.1%. This has also been reflected by high rate of population growth rising from 582 in 1948, to about 9,760 in 1979. The population then increased at an annual rate of about 9.1% to an estimated 20,000 people to date, thus recording an average annual growth rate of 8.8% since 1948 and 7.7% since 1979.

Recent industrial developments in the town are due to the spillover effects of urban and industrial developments of Nairobi which are felt throughout the Nairobi region and which augment the town's natural industrial resource potential. Such factors have collectively led to the development of a strong industrial base with stabilization and reinforcement tendencies.

The town's industrial base is quite diversified based upon agricultural and non-agricultural processing industries. Most enterprises are large and labour intensive employing over 100 people. Prior to its management problems, KMC was employing over 600 people on permanent basis and a large number of casuals, while EAPC employs over 570 workers. Most of these employees are

semi-skilled or unskilled and so fall within the low income groups. The population growth arising from employees of the manufacturing sector has attracted development of service industries to serve the resident population and industries e.g. Kenya Railways, employs over 150 people. Other sectors that have developed in response to this include housing, recreation and catering services, transportation, and other community services.

One of the major contributions of industry in respect to the objectives of the National Industrialization policy is in creating employment and income to local residents and to the country in general. In 1985, manufacturing employed 83.5% of the towns total wage employment and over 59% of towns workforce. To date, it employs about 3,200 workers. It also earned the town about K£ 2.57 million, which was 52.6% of the towns total earnings. It is Kenya's town with the highest proportion of workers engaged in manufacturing and coming only second to Thika in terms of proportion of total earnings derived from manufacturing. This indicates that the town has got high potential for development in the service sector to serve the manufacturing sector, a factor which when combined with increasing manufacturing, will significantly stimulate urban development in Athi River. Trade, commerce and agricultural activities, besides services, would also develop alongside manufacturing.

Some industries in the town produce products for export and so earn foreign currency e.g. canned meat produced by KMC. The EAPC produces cement largely for domestic market thus leaving Bamburi P.C. Factory in Mombasa to produce cement for export, thus earning more foreign exchange required for national development especially in the procurement of capital goods not available locally. The Nova chemical industries produces agricultural chemicals which are crucial for agricultural production, the backbone for our economy.

The spatial - temporal patterns of industrial development have had direct impacts on other sectors of the town. Of particular significance here is the developments in commerce and housing. These two, which are greatly related, have tended to move close to the employment (industrial) areas. The zoning of residential and commercial areas were built upon the location of industry, especially in respect to the location of the first two industries in the town, KMC and EAPC, and Kenya Railways. The primordia of the residential zoning was the first staff housing areas of KMC, EAPC and the Kenya Railways.

By attracting physically close residential and commercial developments, the Galot Industries, Kenchic and Athi Chalk, among others, which are widely scattered over

the town, have tended to scatter housing and commercial developments in the town. The town's housing demand has attracted several housing schemes by and through different agencies and methods of housing, the major categories being local Authority and NHC housing, Industrial staff housing and the private sector housing. Staff housing came first as part of the investment package of the pioneer industries. Later, the public and, more recently, the private sector have made enormous contribution, and thus in a way, triggering less staff housing as part of an industry's investment package as it were.

Provision of house units and industrial development requires a variety of services such as Transportation, Educational, Health, Water, Recreational, Sewerage and Sanitation etc. The two International Trunk Roads serving the town, namely the Great North Road (Nairobi-Namanga, A 109, and Trans-Africa Highway, A 104 (Nairobi-Mombasa), Nairobi's road transport commuter matatu and KBS services and the Kenya-Uganda railway are of particular significance in the town's transportation system for transporting raw materials, finished products, consumer goods and passenger services. With inadequate Educational facilities many children travel to Nairobi to school. Inadequate health services is a major development constraint. The town has no mother and child and maternity services which are thus provided 35

Km away at Machakos' provincial hospital. Recreational facilities for the general public are limited; though better indoor and outdoor recreational facilities are provided to KMC and EAPC employees by the respective companies.

In spite of the many agencies involved in housing and service provision, the town is inadequately served from area to area and from one income group to another; bringing disturbing contrasts in the state of housing, as well as of course, the general (overall) inadequacy. The role of the private sector is most pronounced. It has produced over 3,100 authorised units compared to about 1200 for staff housing, 268 for public housing. Thus accounting for 66.2%, 25.9% and 5.7% respectively of the authorised housing for the general public if one excludes central government institutional housing. Staff housing is largely dominated by KMC and EAPC, which supply over two thirds (66.7%) and over a fifth (21.6%) of the total institutional housing in the town respectively. KMC, yet, employs only about 18.8% of the total industrial workforce while EAPC employs about 17.8%. Except for KMC and Kenya Railways, all industries are unable to house all their employees, though Kenchic is taking tremendous steps in this direction.

Private housing, which are predominantly of the terrace type, offer greater diversity or choice in terms

of quality and rents on housing, while public housing has most limited choice. As such, private housing has greater capacity of accomodating besides more but also diverse households depending on their incomes. Within staff housing, diversity is more pronounced for the two parastatal organizations (KMC and EAPC) than in non-parastatal organizations. Staff housing is largely employer-owned though a few cases of leased staff housing occur.

Household size and house occupancy were found to vary with income of households and size of house. Relatively high income households are not only able to rent relatively bigger houses than can physically accomodate larger households, but also economically sustain a large household consisting of single families than low income households. Holding other factors constant, sub-letting tends to increase household size explaining why staff housing areas have smaller households due to restricted sub-letting. The large houses in the site and service scheme and in the NHC estate, both for relatively high income families have largest household sizes. Room occupancy varies in a similar pattern though certain low income housing areas e.g. Sophia, has conspicuously high room occupancy almost equal to that of large families in in site and service scheme and NHC estate, yet in Sophia households consist of a group of workers other than a single family as in the other two estates.

Analysis of length of occupancy suggest that, duration of occupancy of a dwelling unit by a household will depend on, a households regular income and hence its ability to pay house rent, availability and diversity of choice affordable within that income bracket, place of employment or the employer as in the case of staff housing. The low house rents compared to house quality and households income expenditure on housing, accompanied by non-specificity of employer and limited choice, accounts for the longer occupancy in public housing. Shorter occupancy in private housing are due to the type of employment (many are on temporary or casual basis) as well as on the greater number and diversity of choice in terms of rents (ranging from Ksh. 50 to 250), type of structures (Permanent to temporary) and size of house units.

Housing units in public housing, site and service scheme and all except 9% in staff housing and about 21.6% in private housing have permanent wall building materials, which accounts for 64.2% of towns building structures. Temporary materials predominate in private housing (66.7%) while they account for 9% in staff housing and in total accounting for 30.8% of the towns structures. Semi-permanent materials account for 11.7% in, and only occur, in private housing. Temporary house structures result from both authorised (Kiosk licences) and unauthorised developments. In the latter, this is due to poor development control and so plot allottees without

adequate finance or otherwise as well as squatters built temporary or semi-permanent structures.

Provision of water, toilet and bathroom facilities is dominantly at communal level in staff and private housing areas, while plot (several households) sharing is pronounced in private housing and least in staff housing. Household supply of these services is more common in the site and service scheme and in public housing and least in private housing. Only 30.0% of the households in the town have toilets at the dwelling units. About 11.8% and 23.5% of private housing households have no toilet and bathroom facilities respectively. Plot sharing of toilets in private housing is about 72.5% and 64% for bathrooms. Plot sharing of both services is about 80% in public housing.

Accessibility to these services, measured by distance and congestion, is a problem in private housing than in other areas, then in staff housing, site and service scheme and least in public housing. On average 42 persons in the town share a single water point from a mean distance of 28.6 metres. Further analysis indicated that pit latrines account for 34.2% for the whole town, but an high 80.4% in private housing, the only areas where they are found. Flush toilets account for 60.8% in the town but 100% in staff, public and site and scheme housing. While all bathrooms in site and service scheme and public housing have taps and showers, 66.7% of those

in private housing are rooms without water connections while 21.6% of the households have no bathrooms at all.

Only 15.83% of the sampled units have electricity supply and particularly those in staff and public housing where they account for 43.75% and 20% respectively.

Unemployment in the town is about 14.4% and is highest in private housing where it tops to about 19%. It is, as expected, lower in staff housing. The active population for providing labour for industrial production is largely in private housing though a large proportion of it is unemployed.

Manufacturing accounts for 59.2% of all workforce in the town and about 83.5% of the wage employment. Self-employment accounts for 18.4% of all employment, local Authority and government 17.6% and Agriculture 4.6%. Manufacturing earned the town over 52.6% of (1985) the towns total earnings and therefore becoming the towns chief employer and income earner. Self-employment such as hawking and petty trade and agriculture account for 38.4% of workers residing in private housing, which also dominate in housing workers on temporary and casual employment basis. Such people of low incomes find cheap rents, though of poor quality housing, in private housing. Infact, private sector housing altogether accomodates about 73.4% of the industrial workforce interviewed

excluding KMC and EAPC staff.

All except 11.2% of workers in the samples population worked in Athi River. The 11.2% commute to Nairobi for employment, as compared to 6.91% of Athi River workers who commute to Nairobi for residence. Of the Nairobi workers, 35.7% reside in private housing and an equal proportion in the site and service scheme and only about 28.6% in public housing. However, this accounts for only 9.6% of the workers in private housing but about 41.7% in the site and service scheme, thus indicating that, private housing besides accomodating many local industrial workers also houses many Nairobi workers unlike the site and service scheme which has fewer local industrial workers but many Nairobi workers.

Income profile indicates that over 1984/85 period, 60% of all workers earn less than Ksh. 1500 per month, 21.5% between Ksh. 2000 to Ksh. 3000 and only 4.8% earn more than Ksh. 6000. Based on households, a quarter earn less than Ksh. 1000, while over half earn less than Ksh. 1500. Incomes are lowest in private housing areas and highest in public housing areas. Thus, effective demand for housing and consumer goods is lowest in private housing areas and highest in the site and service scheme. However, due to the large population living in private housing areas, basic community services need to be directed more to private housing areas. House rents vary from Ksh. 50

to Ksh. 1200 per month, with minimum rents in private housing and highest in site and service scheme. Income expenditure on house rent is lowest in public housing, and slightly higher in private housing though of poor quality in the latter. Staff housing takes third highest position while site and service scheme has highest income expenditure on rent of about 22.2%.

Most households were willing to pay more for better rental housing or for tenant-purchase housing, on average ranging from Ksh. 232.00 to Ksh. 945.00 for better rental housing and ranging from Ksh. 303.00 to Ksh. 1020 for tenant-purchase housing.

The community was involved in identifying the major problems and development needs of the town which in order of priority were given as Housing, Water, Employment, Health, Educational facilities, sanitation, roads, street lighting, development plots and security. However, differences in their magnitudes varies from place to place. Housing was ranked the priority problem in private and public housing but third in staff housing after water and health and took second position in staff housing after water. Employment took a significant third position in private housing areas which have highest rates of unemployment in the town. Second major problem in private housing was water while in public

housing was sewerage and sanitation.

High rate of industrial growth, accompanied by high population increase has outmatched the rate of house supply. The local councils inability to deliver adequate housing coupled with its poor development control is a cause of the housing problem. Many industries are also not involved in housing their workers. Other causes of poor housing include the authorised allocation for plots for temporary housing development, lack of land, low effective demand arising from low incomes of the largely unskilled and semi-skilled industrial workers, high rents and low house allowances. Lack of adequate good housing and services (educational and recreational) partly explains why many workers commute to Nairobi for resources. Other factors explaining this commuting include to join friends and relatives in Nairobi and the added availability of easy transportation by KBS or matatu or free staff transportation services provided by some industries.

The community suggested strategies of solving the housing shortage which include providing more plots for people to develop, more local council and staff housing, strict development control, NHC assisted projects, site and service schemes, rent control in private housing, housing co-operatives, repossession and reallocation of undeveloped plots as well as more government assistance

in providing services.

5:2 CONCLUSIONS

Industrial developments in Athi River will continue to accelerate given the advantages associated with its proximity to Nairobi as well as due to the resource potential of its own hinterland. The towns industrial sector is largely dominated by manufacturing and so there is enormous potential for commercial and service sectors for both the industries and the resident population. This will include increased demand for more housing and associated services. Although public, staff and private housing agencies have significantly expanded to supply housing there is a general inadequacy in the town especially in terms of quality of housing and associated services. This has forced some workers to commute to Nairobi for residence, while a considerable proportion of Athi River's resident population obtain some services, especially education, health, recreational and even drinking water from Nairobi; contrary to the objectives of the decentralization policy. Thus, while the town has the infrastructural and economic capability to attract more industries, it has limited capability to provide good houses and community services to the resident population.

The high rate of growth of manufacturing and related industries will continue to attract more population against the background of low rate of housing delivery. At present, the only authorised on-going housing developments are in the site and service scheme, which unfortunately, due to their high rents, are unaffordable by the majority of the workers who are unskilled or semi-skilled; yet manufacturing labourforce is growing at a rate of over 11.1%.

Thus, without proper remedies to house the increasing population especially the industrial workers, population densities in the low income housing areas will continue to increase and squatter developments will expand. As such, this calls for a concerted effort of all agencies involved. Public housing has grossly failed in providing suitable housing. This is partly because of the young council which lacks the financial and personnel capability not only to identify appropriate housing strategies but also fails to exercise control on development. The impact of the National Housing Corporation is commendable though fails in meeting the requirements of the industrial workers, but of the higher income groups. The NHC assisted site and service scheme, unfortunately due to high rents, houses very few of the local manufacturing labourforce, and has a considerable resident population of Nairobi workers - perhaps important as a

residential function for Nairobi workers but not as much for the resident population. The few workers residing in the estate, stay in single roomed terraces which have only come about by default i.e. lack of control on development. Thus, though intended for the low income earners, it houses very few of them.

Most housing for industrial workers and for the community in general has been provided by private and staff housing schemes. Private housing, through both authorised and unauthorised developments, has substantially increased the housing stock albeit largely of low quality but affordable. From present trends, most housing in the town will most likely be delivered by the private sector. The relatively greater choice of housing offered by the private sector has the advantage of removing generalizations in housing delivery, and therefore being able to accommodate a broader category of workers. Rather than quantity, the main problem in private housing are the poor quality of house units and inadequate or lack of services which are largely deliberately so in order to cut down costs so as to charge affordable rents. With many of the workers being in the low income brackets, besides mainly being on temporary and casual employment basis, such cheap private housing is ideal for them. Though public housing has almost equally cheaper rents and of relatively higher quality, their major shortcoming is that of limited quantity.

Staff housing has a great role to play in housing industrial workers. Direct involvement of employers in housing employees would generally improve housing and consequent physical and mental health and economic performance of the workers. Moreover, the industrialist holds the advantage of knowing the suitable/affordable housing for his workers and so can construct houses appropriate for all categories of employees. Cases in Athi River has shown that, staff housing of equal rents to private housing has better provision of services and better quality structures. Thus with more staff housing, even cases of the medium and high income earners commuting to Nairobi would be effectively curtailed. Moreover, staff housing areas have more strict control of occupation and development control and so densities can be effectively managed within the predetermined zones thereby reducing, congestion and overstraining of infrastructure.

Through staff housing initiatives, it is relatively easier to monitor housing and infrastructure provision and requirements in the estates and so improve efficiency of provision and maintenance of housing and associated services. Staff housing experience in Athi River and elsewhere in Kenya indicates that, provision of houses and community services often come as a complete project package and so reduce the reliance of services outside the estates, thus reducing unnecessary movements within

the town. Staff housing also ensures greater co-ordination of industrial and housing developments both spatially and in magnitude, and thus would not only ensure better physical development but also reduce lags in housing. This would increase harmony between place of work and place of residence. An industry will provide housing to workers at the more convenient locations so that movements to place of work are minimised, and so in effect, reducing the problems of congestion and long journeys to work. This also has a bearing in accessibility in the sense that, accessibility between residential areas and places of work are improved. Thus, staff housing would help to properly arrange zonation of industrial, commercial and residential zones in the town bearing the alignment of internal communication network.

A constraint facing staff housing is that, currently there are no provisions at all for allocating residential plots to industries for residential developments. Plots are allocated only to individuals and not institutions. As such, except for the pioneer KMC and EAPC industries which acquired large plots in the town, the more recent industries mainly lease private sector housing for their workers other than being involved in actual housing development. Most of the plots are small and can only house a limited number of workers, since many scattered leased plots of different owners would not be an effective method in providing housing to workers.

The site and service scheme is of particular significance to the town. Besides housing the relatively few medium and high income workers who would otherwise seek housing in Nairobi, the scheme is quite important in housing Nairobi workers who commute from Athi River, hence important in the decentralization process especially in reducing housing pressure and congestion in the city and hence functioning as a residential suburb of Nairobi. Retaining and attracting households of such income groups would greatly increase the effective demand of consumer goods and services in the town, thereby necessitating expansion of service industries, the commercial sector and other community services. Such would be an added impetus for development over and above the manufacturing sector base. Staff housing is not an effective way of attracting Nairobi workers but only in achieving self-sufficiency in housing.

Other private housing schemes such as Makadara private housing areas and the private housing scheme next to NHC estate are of similar significance in retaining medium and high income groups including and increasing number of local industrialists. The latter is largely owned and occupied by the local Asian business community.

The local Authority's limited housing is a constraint to development of the town. It's greater involvement

would lead to more cheaper, affordable and good quality housing, especially for the low income groups. There entire disregard of the medium and high income groups is also not desirable. It is the higher income groups who have the capability (e.g. financial) to be involved in industry, commerce and residential developments especially if they are residents. Retaining the industrialists in the town would certainly make them more informed of the development problems of the town and so would more likely take initiative to alleviate them. Moreover, this would be a way of retaining capital generated in the town instead of draining it into Nairobi or elsewhere.

The local Authority has failed not only in providing adequate housing to the local residents but also in taking advantage of the towns proximity to Nairobi and so produce more housing for Nairobi workers and earn more revenue. The local Authority has no policy to generate houses to reinforce the decentralization policy. Its only private developers who construct houses with a view of not only housing local residents but also Nairobi workers. This is so especially in the site and service scheme and in Embakasi areas.

Poor housing in the town is partly due to inadequate control on development as well as being institutionalised. The local council has offered plots to private developers who hold kiosk licences. Such are only allowed to built

temporary structures usually consisting of single rooms. Such areas e.g. 'Bondeni' lack the required services. Other allottees hold TOL licences. Although such are allowed to built permanent houses, they may as well, built temporary structures. Although kiosk licences and TOL'S are no longer being given out, more temporary structures have continued to come up in the town as squatter settlements usually on undeveloped plots or on deferred land. With increasing population, such houses find easy tenancy due to the large low income industrial workforce who cannot afford better houses. Existing good housing such of the local council (e.g. Makadara) has high population pressure. The 1 bed-roomed houses are now often shared by two households on sub-tenancy basis, thus coverting the hitherto good housing into a slum due to increased densities.

Thus, with the local Authority being unable to provide adequate housing, and with limited supply of staff housing, the private sector has taken advantage of the situation to built structures of all types, often of poor quality and lacking or inadequately supplied with basic services.

The housing situation is compounded by the fact that a large proportion of the workforce are on temporary and casual employment and largely in semi-skilled or unskilled engagements, hence there is low effective demand

of good housing. A considerable number (14%) of the labourforce are not employed. Thus, there is a problem of affordability. This forces many workers to reside in the poor house structures developed by the private sector, given the limited supply of council housing. The industrial workers spent about 12.5% of their income on rents, in public housing areas and 14.1% in private housing; the latter being of poor quality. In the good quality private housing such as in the site and service scheme, the high rents are prohibitive and workers spent 26.2% of their income on housing, which is above the expected 25%, thus there is over-payment.

Assuming that household will spent 25% of their monthly incomes on house rents, house rents of Ksh. 175 are affordable by the only 9.4%, Ksh 176 - 250 by 28.6%, Ksh. 251 - 375 by 22.1%, Ksh. 376 - 500 by 12.6%. Ksh. 501 - 750 by 8.9%, Ksh 751 - 1500 by 13.6%, while rents above 1500 will only be affordable by 4.8%. Thus, any effective housing strategy for the industrial workforce will have to bear into consideration the above pattern.

Finally, any effective development plan in the town must give special attention to the priority development needs which in order of priority are housing, water, employment, health, educational facilities, etc. These are issues that need attention in an integrated manner.

Such a strategy would not only support industrial development in the town, but would also go a long way in operationalising the decentralization policies.

5:3 RECOMMENDATIONS

This section outlines suggested housing strategies for supporting industrial development in Athi River and raises policy issues applicable to other industrial towns in the country and in the developing countries in general. Basically, the recommendations aim at improving housing services through affordable other than subsidized housing. This involves both house structures and services improvements.

The recommendations identify the various housing agencies to be involved. These are suggested under the various headings.

5:3:1 GENERAL RECOMMENDATIONS

Housing inadequacy in the town is due to among others, the high population in-migration (rural-urban) attracted by the increasing job opportunities coupled with rural-urban disparities of standards of living. As such, efforts to bridge this disparity should be emphasized. Such include;

1. Establishment of more rural-based industries especially those which are labour intensive and processing

agricultural commodities.

2. Industrial skills training opportunities should be intensified in rural and urban areas so as to reduce the numbers of unskilled workers in the labourforce who, as a result, have low incomes and can hardly afford good housing.
3. The local Authorities to incorporate lower building standards such that single or double-roomed units with plot and/or communal sharing of services are acceptable. Such should be built of permanent building materials.

5:3:2 STAFF HOUSING

This is recommended as a major strategy for greater industrialization and especially for large industries employing many workers. It is suggested that;

1. Residential land/plot allocation policy be changed so that industries can be allocated plots to construct houses for workers. Presently only individuals are given such plots.
2. It should be made government policy that all industries employing many workers (say 100 plus) should construct or lease houses for 50% of the workforce. This is for both new and expanding industries.

3. For the low income earners, and with acceptance of the building standards specified in Section 3:3:1, employer supervised co-charing of single roomed or double roomed units with services should be allowed to provide fairly good and affordable housing to low income earners.

4. Land for staff housing to be made available to industries and should match the demand. Such areas should be planned for and developed near the industrial areas to reduce transportation costs.

For industrial housing, the local Authority should ensure access to trunk services such as water, electricity and roads for the industrial housing projects. Recommendation 2 above requires constant government monitoring which should be a new responsibility for the Inspectorate of Factories to work in conjunction with housing departments of the industries. Economic gains from house allowances paid for rents (based on market prices) on a check-off system as well as increased economic production of the workers should be enough stimulus for industries to involve in residential developments.

5:3:3 EXPANDED LOCAL COUNCIL CAPABILITY

The ability fo Athi River Town council to initiate development and exercise development control will depend

on its financial, personnel and technical capability which currently is inadequate. This requires assistance from the Ministry of Local Government and Physical Planning as well as from the National Housing Corporation. Specific suggestions here include;

1. Financial support from the National Housing Corporation or from the Ministry for more council housing. This is for rental schemes. Financial assistance should be in form of loans with long repayment periods of about 20 to 25 years. This should consist of two housing schemes of 1 bed-roomed and 2 bed-roomed self-contained housing units respectively. This should provide cheap housing for both local demands and Nairobi workers. The local Authority with thus be seen to promote the decentralization policy.
2. Planning and Development Control need to be improved. Given the strong relationship between Nairobi and Athi River and other suburbs, it is recommended that the planning Authority for Athi River and other suburbs (which currently is the responsibility of the department of physical planning) should establish a liaison committee with the planning department of Nairobi so as to harmonise planning in the metropolitan region.

Alternatively, the Minister should consider establishing

a single planning Authority to cover Nairobi and its suburbs namely Athi River, Ruiru, Ongata Rongai, Ngong etc.

In Development Control, the local council should strengthen the relevant department whose responsibility should be to continually monitor developments in the town to ensure that they comply with the regulations the local council should establish for the town. Demolitions, if necessary, should be undertaken promptly before developments reach uncontrollable limits.

5:3:4 SETTLEMENT IMPROVEMENT PROGRAMMES

While new housing developments are suggested, improvement of existing housing is recommended as a means of alleviating the housing problem. This includes;

1. Electricity connections for domestic use and street lighting in the site and service scheme.
2. Supply of electricity to houses and repairs on the sanitation systems, worn out walls and floors in Makadara Council housing.
3. Local council to ensure that the house structures and services in the old populated Sophia estates are repaired and constantly maintained.
4. Where plot owners have not provided sanitary services (Toilets, Bathrooms or Watering points) in Sophia and

and other private housing areas, the local Authority should ensure that these are provided.

5. Tarmacking of the road linking Sophia and the site and service housing scheme.

5:3:5 SITE AND SERVICE SCHEMES

The present site and service scheme, largely consisting of 2 bed-roomed units, has high rents unaffordable to many of the local workers, though it largely accommodates many Nairobi workers. As such, it is suggested that;

1. The present site and service scheme should be expanded into a similar phase II to meet the limited local demand but especially to house more Nairobi workers in support of the decentralization policy.

To meet especially local needs two types of site and service schemes are recommended. They include;

2. 1 bed-roomed units site and service scheme made of low-cost durable housing materials that would have lower rents and more affordable to local workers and,
3. A site and service scheme consisting of an admixture of single roomed and double-roomed units with plot sharing of water and other services (equivalent to Nairobi's Dandora housing Scheme) whose rents would also be low and widely affordable.

It should be made of good quality low-cost durable building materials.

5:3:6 HOUSING CO-OPERATIVES

This would basically be Savings and Credit Co-operative Societies though involved in housing development as the area of greater concern. This would be formed in two ways.

1. Housing Co-operative, whose membership is open to the general community. The members, depending on their amount of savings, would then be given loans by the Co-operative for housing development.

Alternatively, the Co-operative may obtain a loan from the co-operative Bank or from any other source for housing development and then allocate the houses to willing members for occupation on tenant-purchase or mortgage basis.

2. Formation of housing co-operatives whose membership is limited to workers of a single employer, akin to most existing Savings and Credit Co-operative Societies. Their operations would be similar to those of 1 above.
3. In addition, however, where the employer does not provide housing as per recommendations 2 section 5:3:2 above, the government should legislate policy so that the

employer should contribute a certain amount of finance amounting to a certain percentage of a co-operators savings (monthly or alternatively at time of taking the loan) in a way similar to the NSSF procedure to be used in housing development for workers.

3. To facilitate more housing by mobilizing workers resources through the co-operatives, the local Council, with assistance of the Commission of lands and the physical planning department should, avail land in bulk to such co-operatives as an area of priority. Trunk services should, though, be supplied by the local council but paid for by the plot holders.

5:3:8 PRIVATE HOUSING

The 'Kiosk' and 'TOL' (Temporary occupation licences) land holding titles to some extent hinder proper housing development. Such should therefore be changed to proper or more permanent land leases. It is therefore suggested that; to increase the housing stock through the private sector;

1. New and more plots should be allocated with leases given for 99 years.
2. Existing plots with temporary structures should be given leases of 10 to 15 years, or a shorter period as the present conditions of the houses necessitates

after which proper structures, as specified by the local council regulations, must be erected and then given leases renewed every 99 years. At the end of such periods, prior to renewal to 99 year old leases, the congested Sophia and 'Bondeni' areas should have some of the houses relocated to a new site to decongest them and improve the health of the environment. Other improvement strategies on existing settlements have already been suggested in Section 5:3;4.

3. To ensure good quality housing from private developments, given the constraint of affordability, the local Authority should set limits to the number of dwelling units which should share common service such as a water point, toilets and bathrooms etc. It should also specify the acceptable distances to such services; ofcourse, besides the quality of the house structure. The local council should exercise strict adherence to such regulations in the process of construction of the houses.
4. The local Authority should provide trunk services which would then be repayed by the residents of the particular estate.
5. Any unauthorised private housing developments, which are usually of low quality, on either undeveloped plots or on deferred land should be discouraged right at the onset.

5:3:9 SERVICES

Suggestions have been made for improving certain general community services in the town as shown below.

1. A lasting water solution is required for the town. The Kilimanjaro - Machakos - Kajiado water project is expected to provide water in the town. Once complete, this should be the major source of domestic water since existing supply systems are inadequate in quantity and quality (due to poor treatment).
2. Rehabilitation of the local council supply works to improve the quality of treatment to meet present needs and to be supplemented by the Kilimanjaro project mentioned above.
3. Establish a commercial centre at the KMC hill to serve the demands of the local population to avoid squatter or shanty commercial centres. Other smaller commercial establishments should be located along Makadara - Kitengela road, off Chlorides Metals (K) Ltd. Factory especially to serve the residents of the Portland Junior staff housing and the industrial workers from neighbouring industries.
4. The existing health centre needs expansion especially in maternal & child health services and inpatient facilities so as to reduce movements to Nairobi and Machakos or Kajiado Towns. This will, of course, require additional doctors and more drugs.

5. The two Secondary School facilities currently out of use should be revived, through combined harambee and government (Ministry of Education) assistance into separate Boys and Girls Schools so as to improve quality of the services. This would reduce journeys by school children to Nairobi.
6. Establishment of a Public Park and a Social Hall in the central Makadara area. The latter can be used as a Cinema theatre besides indoor recreational activities so as to raise revenue to the local Authority.
7. To improve interaction between Nairobi and Athi River, improvements in transportation are given priority, such as;
 - (1) The Kenya Railways Corporation Corporation is asked to explore possibilities of running rush hour commuter service, between Nairobi and Athi River. This is cheaper than matatus.
 - (2) Kenya Bus Services (KBS) is asked to improve its services and particularly provide Buses at half-hour intervals at rush hours between Nairobi and Athi River instead of the hourly intervals.

SUGGESTIONS FOR FURTHER RESEARCH

1. The all-time housing problem of affordability emerged again and so it is suggested that more research

should continue to develop better housing materials and techniques at low cost so as to lower rents so as to be affordable by the low income earners.

2. Research should be done to establish the extent to which workers resources are deployed to improvement of the rural homes compared to/at the disadvantage of their urban homes and suggest ways of improving the situation. The Dualistic character of many urbanites in Kenya may greatly contribute to housing problems in urban centres and so such research is worth undertaking.

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APPENDICES

HOUSEHOLD QUESTIONNAIRE

RESPONDENTS DATA

- 1.(a) Name
 (b) Sex (c) Age ,.....
 (d) Relationship to head of household

HOUSEHOLD DATA

2. No. of households staying in the dwelling unit
 3. No. of families in the dwelling unit
 4. How many people stay in the house *

Name	SEX	AGE	OCCUPATION
1			
2			
3			
4			
5			
6			
7			

* Excluding respondent.

5. When did you start staying here

HOUSE OWNERSHIP AND CHARACTERISTICS

6. Name of housing estate
 7. House ownership Public Private

Specify ownership Athi River Town Council

NHC Ministry(.....)

Occupier

Individual (Private) rented

Other (specify)

8. If rented, occupancy of house is

Tenant Sub-tenant staff/company house

9. Land ownership Local Anuthority Leasehold

Government Freehold

10. Type of Housing units

(a) Flats (b) Terraces (c) Maissonettes

(d) Detached single units

(e) Other (specify)

11. Size of dwelling unit

	NO	Size(s)	No. of windows
Bedrooms			
Other living rooms			
Latrines			
Bathroom			
Kitchen			
other 1.			
2.			

12. House occupany

13. Building materials

(1) Floor.....

(2) Walls

(3) Roof

(4) Doors

(5) Windows

(6) Ceiling

14. General type of building structure
 (a) Temporary Permanent Semi-permanent
15. Conditions of House
 (a) Floor
 (b) Walls
 (c) Roof
 (d) Doors
 (e) Windows
16. General condition of dwelling unit
 (a) Poor Fair Good Excellent

SERVICES

17. Do you have the following services indoor?

	<u>Yes</u>	<u>No</u>
(a) Water	—	—
(b) Electricity	—	—
(c) Telephone	—	—
(d) Toilet	—	—
(e) Bathroom	—	—
(f) Solid Waste bin	—	—

18. If services not indoor;

Fill the following where applicable for the situation of various services

	Individual outside house	Within/For plot	Communal
Water			
Bathroom			
Toilet			
Solid Waste bin			

19. Type of facilities

- (a) Toilets (i) Pit latrine (ii) Flush Toilet
 (iii) Toilet-cum-bathroom

- (b) Bathroom (1) Tap (2) Shower (3) Basin
 (4) Room without water connection
 (5) None

20. If facilities not inside the house, how far is it to;

- (a) Water point
 (b) Toilet
 (c) Bathroom
 (d)

21. About how many people share the following services

- (a) Water
 (b) Toilet
 (c) Bathroom

22. If water is outside house, do you buy it YES NO

23. Where and How far do you obtain the following services

	Name/Place	Distance
Nursery school		
Primary school		
Secondary school		
Child & Mother care clinics		
Dispensary		
Church/Religious services		
Childrens play ground		
Playing field		

24. Where do you buy manufactured household provisions.

- Kiosk Shop Other(specify)

25. How far is the nearest shop

26. (a) Where do you buy your groceries?

Hawker Kiosk Grocery shop

(b) How far is it from your house?

27. (a) How do you dispose garbage

(a) Household garbage bin (b) Plot garbage bin

(c) communal container (d) open dumping

(e) other

(b) How often are the solid wastes disposed from -
above?

EXPENDITURE AND EMPLOYMENT AND INCOME

28. Place of work ? Athi River
Outside Athi River (specify)
(This applies to head of household).

29. Type of employment

Industry Commercial

Agriculture Government

Local Council Self-employment

30. Occupation

31. Name of employer

32. Nature of employment? (a) casual

(b) Temporary

(c) Permanent

(d) Contract

33. If self-employed, what type of work do you do
.....

34. Approximate distance to place of work
35. Means of communication to place of work
- (a) Walking (b) Bus/Matatu
- (c) Cycling (d) other(specify)
36. If Matatu/Bus, daily transportation costs to and from place of work
37. Monthly income of house occupants in K.sh.
- Head of household
- Others 1.
2.
3.
4.

TOTAL _____

38. How much do you spend on the following items for the given periods

ITEM	WEEK	MONTH	YEAR
House rent			
Food			
Fuel(specify type			
Transport			
Education			
Water			
Health			
Savings			
Clothing			
Other 1.			
2.			
3.			

39. If you save money, in what institution ?

Post Office Savings Bank Other Bank
Co-op Society Building Society
Other(specify)

40. If occupier of house is owner, how much in rates do you pay to Athi River for Plot/Land/License?
.....

41. If tenant-Purchase, how much do you pay for the house per month

42. If house is owner-occupies, how did you finance the purchase

(a) Mortgage (b) own savings
(c) Tenant Purchase (d) inheritance
(e) Bank loan

PROBLEMS AND OPINIONS

43. What problems, if any, do you face with,

(a) Water
.....
(b) Toilet
.....
(c) Washing/Bathing
.....

44. Are you satisfied with your present house? YES NO

If no, what type of house would you like to occupy?
.....

Rooms	Number
.....
.....

45. What facilities would you like to be within the house or shared by the community ?

- (a) Within house
-
- (b) Communal
-

46. What is the maximum amount of rent would you wish to pay

- (a) for this house
- (b) for a better house

47. Would you like to own your house here in Athi River?

YES NO

48. If you were to purchase your own house, what maximum amount of money would you afford to pay for that house each month in order to finish payment quickly ?

.....

49. In what ways do you think your housing problems could be solved ?

.....
.....

50. (a) Do you think there is a housing problem in Athi River ?

YES NO

If Yes, what are the causes of the problem?

.....
.....

51. In what ways do you think housing for the poor in urban areas could be improved

.....

.....

52. What are your priority needs here in Athi River Town (Rank them in order of preference)

1.
2.
3.

ENVIRONMENT (To be completed by interviewer)

53. Give a general state of the following housing elements.

1. Roads
-
2. Trees (Greeneries)
-
3. Cleanliness
-
4. Space organization
-
5. Street lighting
-

54. (a) Do you own a/another house elsewhere ?

	Yes	No
In Athi River Town		
In another Town		
Upcountry(Rural) home		

(b) If you have a upcountry house, is it better than this one ?

YES

NO

(c) Of what material is it built?

(a) Roof -----

(b) Walls -----

(c) Floor -----

(d) Windows -----

(C) EMPLOYEES QUESTIONNAIRE

1. (a) Name..... (b) Age..... (c) Sex.....

2. (a) Place of work Athi River Nairobi Other

(b) Name of employer -----

(c) Work done/occupations -----

3. (a) Place of Residence Athi River Nairobi Other.....

(b) If place of work is not place of residence, why do you stay in a different place

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

4. (a) How big is your house where you stay (i.e. no of rooms)
.....
.....
.....

(b) How much rent do you pay for it per month

.....
.....

5. If you are a commuter, how much do you pay for transportation per day.....
.....

(B) AGENCY QUESTIONNAIRE

RESPONDENT

- 1. Name
- 2. i. Sex ii. Age
- 3. Officers rank in Agency

HOUSES. TYPE AND SIZES

- 4. Name of Housing Agency ?
- 5. Which of the following is applicable to this agency ?

Private Public

- 6. How many housing schemes do you have in Athi River?
Give names?

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

- 7. Type of Housing units numbers and families housed ?

	<u>Numbers</u>	<u>Families housed</u>
(a) Flats
(b) Terraces
(c) Detached single units....
(d) Massionettes
(e) Others
1.
2.

- 8. When were the houses above built?

- 9. What criteria was used in allocation of houses?
.....
.....

- 10. Fill the following table concerning your housing estate.

Plot sizes

House sizes

Plot coverage

11. (a) Who constructed the houses (i.e. the contractor)?
.....

(b) From where is (i.e. Town) the contractor based ?

(a) Athi River (b) Nairobi

(c) Other(specify)

SERVICES

12. Which of the following services do you provide (-
Give names of institutions were applicable).

	<u>Yes</u>	<u>No</u>	<u>Name</u>
Schools	_____	_____	_____
Hospitals	_____	_____	_____
Shops	_____	_____	_____
Playing fields	_____	_____	_____
Roads	_____	_____	_____
Street lighting	_____	_____	_____

BUILDING MATERIALS

13. What were the building materials used?

- (a) Roof
- (b) Walls
- (c) Floor
- (d) windows

14. Sources of building materials.

- (a) Roof
- (b) Walls
- (c) Floors
- (d) Windows
- (e) other 1. Nails
- 2.

15. How did you acquire land for development ?
.....
.....

FINANCE

16. (a) Sources of funds
.....
(b) Loan repayment period
.....
(c) Interest rates
.....
(d) Total cost of development
.....
(e) Cost of one house
(f) Costs incurred on acquiring land
.....
17. Give any problems in acquiring land
.....
.....
18. Required monthly payments for the houses
.....

PROBLEMS AND OPINIONS

19. (a) Give any problems associated with collection of
rents and/or maintenance of houses
.....
.....
(b) What are the causes of the problems
.....
.....
.....

20. (a) What (handicaps) problems, if any, does your organization face in providing adequate housing to the residents?.....
.....
.....
.....

(b) What are their possible solutions?
.....
.....

21. (a) Do you have any future phassing plans here in Athi River.?

YES

NO

(b) If Yes, what do you intend to do?
.....
.....