

A CRITERIA FOR URBAN BOUNDARY EXTENSION OF  
KENYA TOWNS

"A CASE STUDY OF NYERI MUNICIPALITY." ✓

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A THESIS SUBMITTED IN PART OF FULFILMENT FOR  
THE DEGREE OF MASTER OF ARTS (M.A)

IN

URBAN AND REGIONAL PLANNING

IN THE UNIVERSITY OF NAIROBI.

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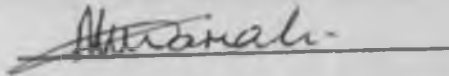
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AUTHOR WANJIRU M.W. WARIUA.

  
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THIS THESIS HAS BEEN SUBMITTED FOR

EXAMINATION WITH MY APPROVAL AS

UNIVERSITY SUPERVISOR.

MR. E.D. NDEGWA

SUPERVISOR \_\_\_\_\_

DEPARTMENT OF URBAN AND REGIONAL PLANNING  
Faculty of Architecture, Engineering and Development  
P. O. Box 30172, Nairobi 27441  
UNIVERSITY OF NAIROBI.

## ABSTRACT:

Urban boundary extension being the result of Urbanisation is in fact regarded as an Indicator of development, for with it comes a general improvement in the living standards. Boundary extension involves bringing more land into township so that the township becomes much larger in Area. It is assumed that boundary extension provides a solution to problems facing the township especially those pertaining to land tenure and finance. This does not necessarily mean so since most of the land in these councils is still freehold and is not available for development. Machinery to collect revenue from extended areas is lacking.

The study undertaken by the Author is an attempt to establish a criteria for Boundary extension of Nyeri town being one of the Kenya towns where boundary extension has taken place in recent times. Lack of a clearly defined criteria for establishing Urban boundaries has resulted in more land being included in the Municipality inability of the urban councils to carry out its obligations has resulted to slums coming up, while at the same time the council finds it impossible to provide the necessary infrastructure for the improvement of the quality of life.

Boundary Extension however is inevitable due to rapid growth of the towns.

The Commission of Inquiry into the extension of boundaries does not offer guidance in matters pertaining to land requirements

and direction of growth. These crucial factors are left between the county council and the urban council to come to a compromise. The members of the county council and the Urban council lacks Technical know-how and the decision they make is subjective and influenced by politics hence there is need to establish a criteria for urban boundary extensions.

Nyeri town was found to have a large area which is difficult to develop due to topography. A large area is under freehold and is densely populated. The areas which are suitable for urban development if acquired would be enough for the next 20 years taking the projected land requirements on the basis of slope and population growth.

Acknowledgement.

The completion of this study could not have been successfully accomplished without the co-operation of many people to whom I owe a lot of thanks.

I would like to thank first of all most heartedly My supervisor My<sup>K</sup> E.D. Ndegwa for tirelessly reading through the draft of this Thesis and offering useful suggestions and ideas which have greatly Enriched this thesis Professor Subbakrishniah the former head of the Department of Urban and Regional planning My colleagues, My family and the department as a whole which offered co-operation and Moral support.

I would like to thank all those people who provided me with useful information during my research Mr. Waitete from Local Government staff of the physical planning department both at Nyeri and Nairobi, Mr. Kungu from lands department and Members of staff of the Kenya National Archives.

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CHAPTER 1  
GENERAL INTRODUCTION.

1.0: Introduction.

The study area is an attempt to look into the present policy of urban boundary extension of Kenya towns and in particular that of Nyeri Municipality. The criteria used to justify boundary extension is examined together with Associated problems.

A brief statement of the objective of the study is made. The chapter concludes with a statement of assumptions that will guide the investigations as well as the methodology and sampling procedures used in the study.


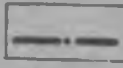
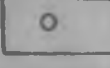

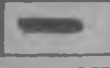



1.1. Growth of towns in Kenya.

Most of Kenya Towns owes their growth to non-African influence and the changing circumstances of colonial government policy.<sup>1</sup> Opportunities available for the Africans in town were limited. With independence in 1963 things have changed. Gates to urban areas have been opened resulting to massive rural-urban migration.<sup>2</sup> Nyeri township is no exception to this. Increase in urban population has been so rapid that local authorities are unable to cope with demand for provision of services which includes infrastructure and social services. Housing problems in Nairobi and lack of basic services such as water is a manifestation of rapid population increase in Kenya towns. Map 1 shows Nyeri township in the National context.

- 
- |    |                           |   |
|----|---------------------------|---|
| 1. | Edward Brett.             | Colonialism and underdevelopment in East Africa.                    |
| 2. | Salah El Sharks & Obudho. | Urbanization, National development and Regional Planning in Africa. |

# NYERI MUNICIPALITY : NATIONAL CONTEXT



- |  |                           |   |                       |
|--|---------------------------|---|-----------------------|
|  | PRINCIPAL TOWNS           |  | NATIONAL BOUNDARIES   |
|  | OTHER TOWNS               |  | PROVINCIAL BOUNDARIES |
|  | INTERNATIONAL TRUNK ROADS |  | NYERI MUNICIPALITY    |
|  | OTHER MAJOR ROADS         |   |                       |
|  | RAILROADS                 |   |                       |

SCALE 1 : 6000000



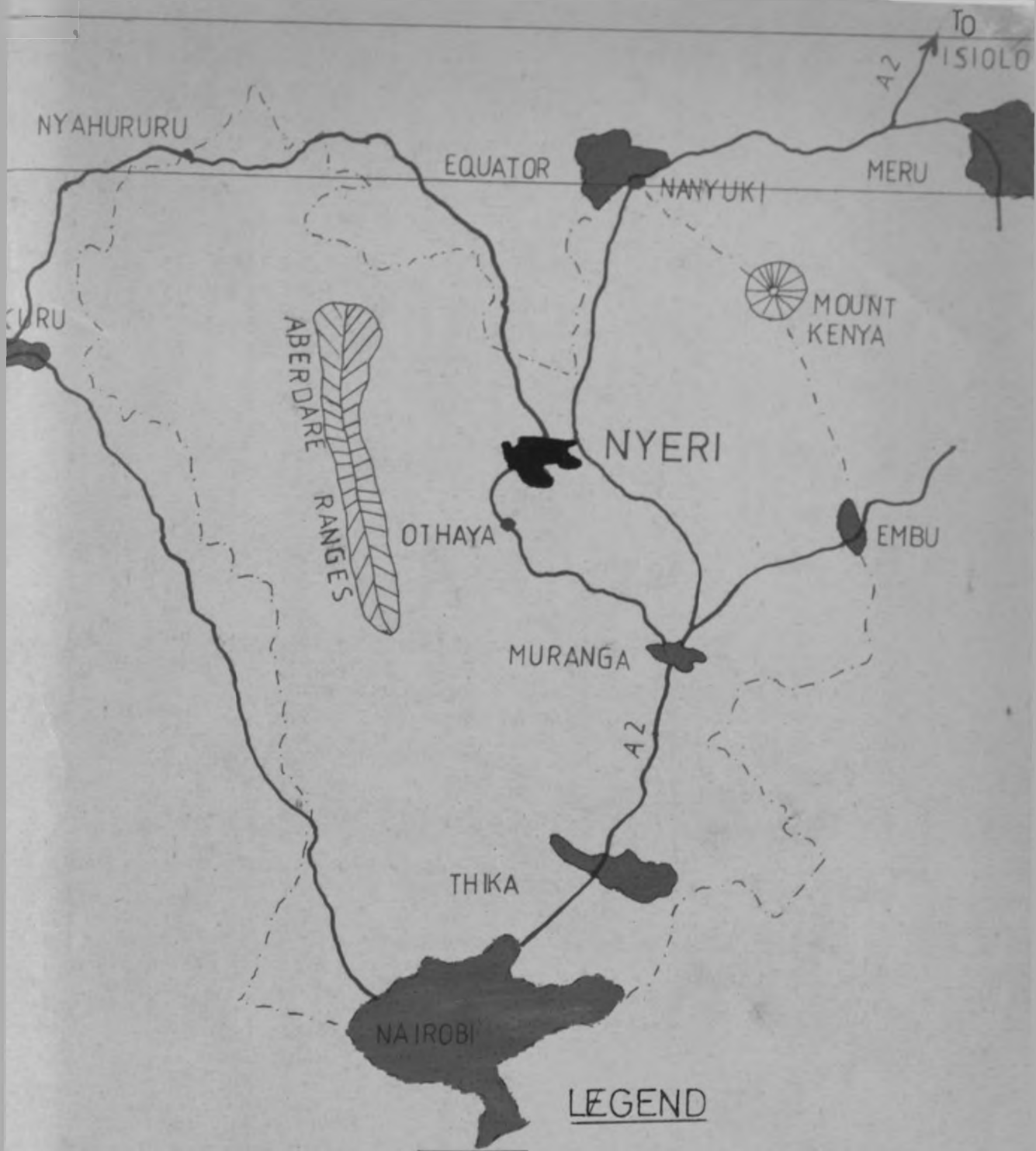
MAP N<sup>o</sup> 1

The area on which Nyeri township is located (Map 2) Regional context map) is bounded on the North by Hon. (Amboni) river. Prior to the European settlement, The area was mainly a light forested grazing area in a no -mans land which served at times as a place for peaceful exchange of goods and women between the Kikuyu and the Masai.<sup>1</sup> In 1911 Nyeri was declared a township with an area covering 7 km<sup>2</sup> Nyeri grew as an administrative and commercial centre in 1912. It became the headquarters of the province of Kenya. In 1913 Auction of township plots~~was~~ was announced with the provision that each "community" European, Asian, African was to be allocated separate section of the town. Development of the town was therefore influenced by topography of the area and racial policy.


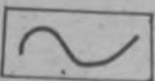
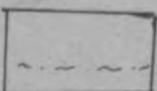

Nyeri continued to grow as a township until May 1971 when it became a Municipality. Its first Mayor was elected, its boundaries were officially extended to include 72 km<sup>2</sup> as opposed to the previous 7 km<sup>2</sup>. See Map 3.

Boundary extension was intended to solve many urban problems such as land, housing and finance, and to guide development in the the satellite towns such as Kamakwa and Ruringu. Land available for future development was not adequate hence the need to acquire more land outside the old township. Bringing more land in the township meant that more money could be collected from land rates, and other levies.

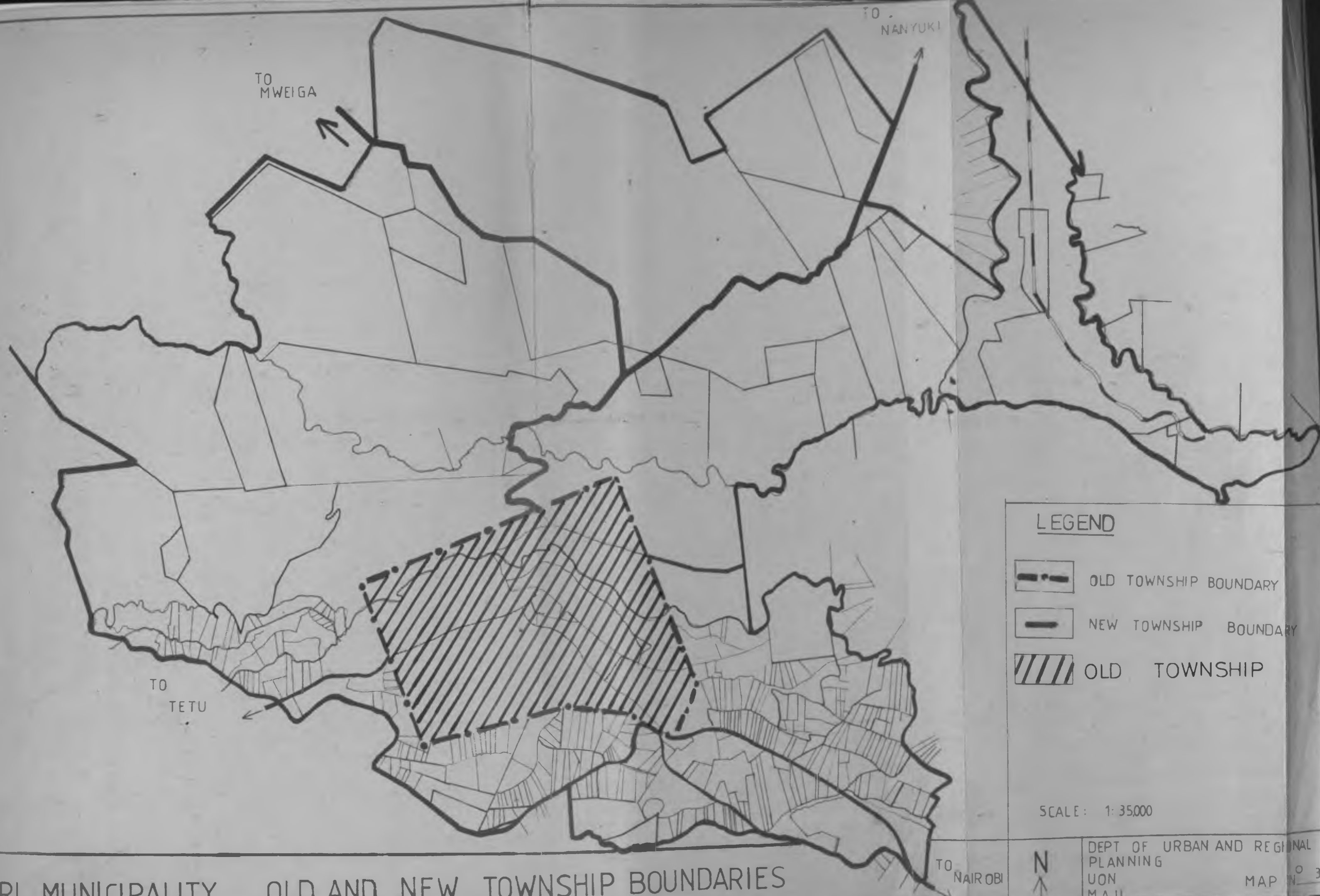
1. Oral evidence from field visit.
2. Official gazette 15th May, 1911.



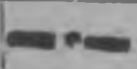


LEGEND

-  MAJOR URBAN CENTRES
-  PAVED ROADS
-  PROVINCIAL BOUNDARIES
-  NYERI MUNICIPALITY MAP N<sup>o</sup> 2

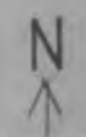
NYERI  
TOWNSHIP : REGIONAL CONTEXT



LEGEND

-  OLD TOWNSHIP BOUNDARY
-  NEW TOWNSHIP BOUNDARY
-  OLD TOWNSHIP

SCALE: 1:35,000



DEPT OF URBAN AND REGIONAL PLANNING UON MAII MAP NO 3



The area included in the Municipality is densely populated to the south and to the North are large scale coffee farms. This implies that a lot of money has to be spent to compensate the owners so as to free the land for development. Housing shortage has not yet been alleviated, and continues to be manifested at Kiawara, Majengo, and Shauri Yako areas, the slum areas of Nyeri. These areas have not been upgraded due to lack of funds. The Municipality lacks enough staff to control development, this has resulted in some areas which were zoned for industry being turned into slum areas. Kiawara is a good example.

The exercise of Boundary Extension was not only in Nyeri township but covered other main towns like Embu, Malindi, Kisumu, and Meru.<sup>1</sup> The process of upgrading Townships has accelerated between October 1980 and November, 1981.

1. Republic of Kenya Ministry of Local Government report of the commission of inquiry into extension of boundaries of the proposed municipalities for Nyeri, Embu, Meru, Malindi and Mamburii.

## 1.2.0: UPGRADING PROCESS IN KENYA.

The Ministry of Local government is charged with the responsibility of upgrading township centres to higher status. In early 1970s and late 1960s the government took a deliberate effort to upgrade the local authorities.<sup>1</sup> At this time most of the provincial Headquarters boundaries were Extended. Below is the recorded criteria which the Local authorities follows to extended boundaries.

The town planning advisor visits the town makes physical inspection on total land which is required to meet the town future needs over the specified period of time.

The town council and the county council of the affected areas agree on to which areas are to be included in the Municipality. The town council writes to the commissioner of boundary Extension requesting their township to be expanded A map showing existing and proposed boundary accompanies the request. The commission of inquiry into Boundary extension visits the town in question and acquaints itself with development taking place in the town, the Commission tours the proposed and existing boundary and meets the town Council and county council members to explain the Implications of boundary extension, a public meeting is also held to hear oral evidences and written memorandum from Interested parties. The Commission

1. The Standard Newspaper 20th Jan. 1982 Pros and CONS of Higher Urban Status.

can make adjustments for administrative purposes, arguments for and against boundary extension are weighed and a resolution is passed as to whether the boundary will be extended or not, and what areas are to be included.

#### 1.1.1:Kisumu Boundary Extension.

Before Kisumu township boundary was extended the township was subjected to reductions in area first in 1923 and second in 1932 hence it was smaller than towns of comparable size, Eldoret and Nakuru.

Discussions and consultations to extend the Boundary started in 1960 but little was achieved because of opposing views of the Municipal Council and members of the county council. Local politics and misunderstanding attributed to failures in early attempts to extend the township boundary, consequently any further growth was hampered since development of land within the Municipality jurisdiction was exhausted.

The town planning Adviser visited Kisumu and made physical inspection on total land which was required to meet the towns future needs for the next 30 years he gave his views as to why the Municipality boundary should be extended.

His main concern was Peri-Urban growth and associated problems which included Health, lack of controlled development in these areas had resulted in unplanned buildings without allowance for public convenience, like roads, open space and sanitation, water supply from wells, pools rivers, lakes and drains is not adequate.

Dwelling units were poorly ventrated and lack essential facilities such as latrines, bathrooms, and kitchen. This shows that the sanitary and health conditions in Peri-urban areas were very poor and conducive to outbreak of diseases such as typhoid Cholera and fever endangering life of the peri-urban areas as well as the town population.<sup>1</sup>

The council would control the annually flooded areas of the town in order to control effectively the spread and breeding places of mosquitoes. Boundary Extension would enable the council to control smuggling of uninspected meat, milk (etc) to the town.

The town planning Advisor also planned for a major Industrial development beyond the peri-urban areas to serve both the Nyanza and western provinces. The land for future development was already exhausted, and town planners had located site and service housing

1. Obudho AR - Periodic markets urbanization and Regional  
& Water Peter Planning greenwood press.

scheme outside the township boundaries, making the implementation of the project very difficult. There was fear that if the boundaries were not extended far enough, when the present peri-urban areas were absorbed within the Municipality boundary and proper development are made and started a new peri-urban area may be re-established and take the place of the present one thus perpetuating the peri-urban problem of Kisumu. The areas to be included in the Municipality had a population of 11,347 by 1969 census.

After holding discussions with the county council, the Municipal Council wrote to the Commissioner requesting their township boundary to be extended the commission of inquiry into boundary extension first visited the area on 12th June 1970, they toured the proposed and existing boundaries on 1st July 1970, the Commission addressed Full Council of Kisumu municipality at Kisumu Town Hall, the Municipal Chief officers, the members of Kisumu county commission were in attendance. The implications of boundary extension were explained. On 10th July 1970 the commission held a meeting with the members of Kisumu county Commission and resolved that:-

"In view of the need for enormous space for future development of a growing town like Kisumu the proposed extension of Kisumu Municipal boundary be accepted and that a memoranda on the matter be submitted to the commissioner appointed to inquire into possibilities of extending the Kisumu Municipal Boundaries."

Public meeting of all interested parties was held on 21st August 1970 the meeting was attended by 200 people several people gave oral evidences and others submitted written memorandum.

People accepted the idea of Boundary extension on condition that land consolidation and registration was to be carried out in all the areas to be ceded in the Municipality, and that the extension did not immediately interfere with their farming activities.

#### 1.2.2: EMBU BOUNDARY EXTENSION.

In Embu, the county council, and the urban council agreed on the areas to be included if the boundary was to be extended. They submitted a memorandum to the commissioner for Boundary extension. On 22nd June 1970 the commission held a meeting with councillors of both Embu county council and urban council, the Provincial Commissioner of Eastern province the Member of Parliament, and the District commissioner Present and future development programmes

for Embu were discussed, and a joint memorandum was submitted to the commissioner for boundary extension. On 22nd July 1970 a public meeting was held to hear oral evidences and written memorandum from members of the public and interested parties. No member of the public except the urban council and county council officials attended the meeting. No objection was raised and the commission was satisfied that it was a unanimous desire of Embu people to have the boundaries extended. The existing area was estimated to be sufficient for Embu upto the year 1990, and to cater for a population of 20,000, without any Industrial land. By the year 2000 the population was estimated to be 32,000 hence the need for additional land for future development.

The Provincial Commissioner (PC) personal view was that the town was not ripe for Boundary Extension he felt that other towns like Meru, and Machakos could be considered first due to faster growth and high surrounding population. The Pc also looked at the standard of the Urban Council members and felt that they were not qualified enough to handle development matters.

The fact that Embu was a provincial headquarter gave it priority over other towns like Machakos, and that qualified personal from other areas could move in and take top posts.

1.2.3: MALINDI TOWNSHIP BOUNDARY EXTENSION.

The Urban Council and the Municipal Council discussed and agreed that since Malindi had some tourist attraction, it could earn foreign Exchange, it was necessary to elevate the town to Municipal status for the future orderly development so as to promote incentives for Economic growth.

Another reason for elevation was seen as pride of the urban people to have civic dignitaries like a mayor, a town clerk, an intangible asset of enhancing status, which is difficult to assess. Elevation, would also instill in the minds of rate payers great Interest in the affairs of the council and fuller appreciation for the services provided in relation to chargeable rates, to provide capable citizens to serve upon concillors thereby strengthening their deliberations.

The Commission of inquiry into boundary Extension visited Malindi, on 25th June, 1970 they carried out some field inspection on 27th July 1970 they visited the area to hear public evidence there were seven written memorandu and seven people who gave oral evidence all supported the idea of boundary extension. There was one memorandum signed by 13 Arabs 6 farmers 2 teachers, and 5 bussinessmen. These objected to the boundary extension, they argued that since 50% of the rate payers were in arrears, elevation of the town would imply more defaulters, Poverty of the residents, demostrated by poor houses which were not maintained meant that Local people were unable to fulfil their urban commitments.



The commission brushed this aside on a point that no overnight changes would take place and rates charged may remain like that for a long time. Elevation would include Residential houses along the beach to the South and the council could collect rates from these, hence no need to increase rates. Another memorandum against elevation was received signed by 88 Arabs, this was disregarded and was seen to have no substance. These Arabs were seen to be antiprogress and wanted to avoid paying Rates.

The present area was a semicircle 2 miles radius all this land was used up and the council has nowhere to build its offices the main problem was that land around was freehold and landlords preferred to rent rather than sell. More land within the town boundary was necessary to cater for the projected population of 75,000 people by the year 2000. During the commission final hearing it was unanimously suggested that the Boundary be extended by 3 miles to give five miles radius. The boundary was to follow existing plot boundaries.

#### 1.2.4: Nyeri township Boundary Extension.

In Nyeri the county council and the urban council wrote a joint memorandum to the commission of boundary extension asking them to evolve itself with Boundary extension and elevation exercises of Nyeri township. The Commission of Inquiry into boundary extension

visited the town and carried out physical inspection, this revealed that the land within the present township was exhausted.

On 25th July 1970, the commission visited Nyeri to receive oral evidences and written memorandum from interested parties. None of the members of the public except the Manager of Outspan Hotel and government officers who included members of the urban and county councils appeared in the meeting. These officers supported the idea of boundary extension and elevation of Nyeri Urban council to a Municipality. They argued that the township is served by good communication network linking it to other towns, it has some tourist facilities such as hotels and received 30 - 35,000 tourists per annum and a throbbing agriculture and commercial centre. The commission observed that there was a unanimous support for proposed Boundary extension. Map 3 shows the proposed boundary which was to include Kamakwa, which is 2 km from developed part of the town, Ruringu 3 km from town centre, these were seen as satellite towns Mathari mission complex and Kiganjo trading centre. These areas which were to be ceded in the Municipality were recommended by the town planning adviser, development within the proposed boundary was zoned as follows:

North-Eastern side next to the main Nyeri/Kiganjo Road the boundary was to start at Kingongo Prison, since next to the prison farm land has been set aside for site and service scheme for majengo area which has to be cleared and give way to better houses in present slum areas.

The town centre was for government offices, commercial premises, adjacent to the Ministry of works is a piece of land set aside for industrial development, to the west of the town is Kamakwa a satellite town where the council had plans to build some Tenant purchase houses for the medium income group. Along Ring Road are the individual owned high class Houses. Some undeveloped individual plots 2-5 acres, these could be acquired by the council and be subdivided for more plots Kimathi Estate is on the South-west this is a council rental housing scheme, to the south is Ruringu a growing market centre which is part of Nyeri. There is a large Tenant purchase Housing scheme, a provincial sports ground Ruringu stadium where all sports and agricultural shows are held.

The District officer's office, county council offices are also found here. Ruringu has an administrative Police Training centre children's home and is a rural training centre. This satellite town is well served with shops, Restaurants and bars. Plots

have also been set a side to build a bank, and a petrol service Station land in the surrounding areas is freehold and is densely populated, main activity being agriculture.

In the areas which are acquired by the council at Ruringu, the services provided includes piped water, and conservancy tanks refuse is dumped in a central area where it is left to rot. The Council is charged with the responsibility of refuse collection from the dumping ground but field survey showed that they were not doing this. The access roads are not properly maintained and are muddy during the rainy seasons.

Mathari Mission complex has the following Institutions Nurses Trading centre, St. Cecilia Teachers College, St. Teresas primary school. Muringato Hill primary school, surrounding the Mission is Kamwenja with the following Institutions St. Pauls Seminary Nyeri, Secondary school St. Martins Children Orphanage Muingi Primary School Bishops house and Kamwenja Bondo Primary school. All these Institutions the council had to be called upon to provided services such as water, refuse collection, and sewerage services , hence the need to include the Mathari Mission complex. In the Municipality the council hoped to get more revenue from these Institutions. Kiganjo though 7 miles from Nyeri township was to be included in the Municipality being the only Railway outlet for Nyeri town.

The main developments that has taken place at Kiganjo included Kenya Police training college. A primary school, KCC milk processing plant and it is a growing market centre and has good land for Industrial development. The commission of inquiry into boundary extension did not go into details as to how much land was required for each use, this was the responsibility of the council. Co-ordination of development in these areas was also left to the council.

The commission observed that the proposed Municipality would earn more revenue from Kiganjo in exchange of the services that it may render to the trading centre.

Ruringu and Kamakwa being adjacent to the town already presented fringe development and the commission saw that is was unwise to exclude them. The commission felt that annexation of these two areas would solve, problems caused by the urbanisation of fringe areas of Nyeri township.

1: 3: PROBLEM STATEMENT.

The 1st era of the governments deliberate effort for upgrading of the Local authorities was in the early 70's and it is this time when most of the provincial Headquarters Boundaries were extended.

The urban council and the county council of the areas in question holds discussions and agrees as to whether the boundaries of the town in question are to be extended. The discussions are based on the advise given by the town planning Adviser. The town planning Adviser carries out some projections as to the amount of land that the town will require in future.

The urban council and the county council then writes a joint Memorandum to the commission of boundary extension requesting Boundary extension of a given town. The commission fixes a date to visit the town in question and to hold a meeting with members of the county council and urban council. The commission then visits the area, carries out some field inspection, and holds a meeting with the members of the county and urban councils. The commission tries to find out why the urban council want to include certain areas in the Municipality, another date it fixed to hear oral evidences from members of the public and written Memorandum from Interested parties. Final decision is reported over the radio and the local press.

Alot of land will be required in future to take care of the influx of people into urban areas and for the establishments of the neccessary development facilities therein to sustain the growing urban population. Of late many township boundaries have been extended and they have been accorded higher status, but the the truth of the matter is that elevation is not development and does not neccessarily bring it. There is misconception that, once a town is elevated and a Mayor is elected, the people of the township will live like those of Nairobi, where there are brightlights, dual highway, and flyovers.

The situation today is different and many towns whose boundaries have been extended have not made any pla sible headway in development instead they have found themselves laden with imense problems especially those pertaining to land tenure finance and manpower.

Most of the land in the extended zones is still under freehold ownership and authorities find it very difficult to effect any development on those areas. The result in some cases has been mushrooming of slums while at the same time the Municipal Council finds it very expensive to provide the necessary infrastructure for the improved quality of life, hence the initial motive of controlling development is defeated.

The question as to whether the commission of inquiry into boundary extension does offer the desired criteria governing boundary extension is left unanswered, and whether the present trend of urban development can ensure a rational use of scarce resources for the benefit of the majority remains to be seen. Of late people are beginning to realise the legal implications of being included in the Municipality as a result they are beginning to question the reasons behind boundary Extension. People at Karatina township objected to boundary expansion, they feared that their land which they depended upon for livelihood will be taken without immediate compensation they also objected to the fact that compensation was to be monetary rather than in kind. These people did not like the idea of becoming landless.. The people felt that although there was no land left for future expansion the council was far off in provision of services. They argued that developers should deal with landowners so that the question of compensation is dealt with once and for all.

The politicians however were behind the protestors and wanted to back them so as to win their votes. They even convinced the protestors that their land would be taken to compensate the area which could have been included in the Nyeri Municipality were it not for the big-shots who had some influence.



In 1979 the Municipal council of Meru retracted its boundaries as an attempt to overcome many urban problems especially those related to land use, in the extended areas. The main factors which led to the retraction of the boundaries included finance, manpower and law governing the use of land in the Municipality which people feel it was too involving, and time consuming, land ownership which is freehold is also a problem since acquisition and compensation has to take place before land is free for any development. The lesson learnt on critical considerations in the boundary extension exercise for Meru case, is that boundary extension has its own problems, it does not necessarily lead to development it is therefore necessarily to consider the advantages and disadvantages of boundary extension as well as its implications.

Nyeri Municipality covers an area that is densely populated to the south while the other part is covered by extensive coffee plantation to the North this area has not yet been acquired by the council. A significant portion is difficult to develop because of topography, most of the land in the extended areas is under free ownership this makes the exercise of land acquisition for urban development very expensive.

#### 1.4 OBJECTIVE OF THE STUDY.

The objective of the study is to come up with a criteria for urban boundary extension which can be applied not only in Nyeri but .

also in other areas. The factors to be considered when developing this criteria are population dynamics to help in establishing land requirements, the economy of the hinterland which will serve as a guide to the type of Industries that are likely to come up hence the industrial land requirements infrastructures services as well as Management capacity of the Local authority, to handle development matters. This involves examining manpower capacity legal and fiscal matters as handled by the council.

#### 1.5: Assumptions of the study.

The study is based on two basic assumptions.

1. Urban boundary extension precipitates development in agricultural areas and this makes future urban development very difficult.
2. The commission of Inquiry into boundary extension does not have a clearly defined criteria for evaluating boundary extension.

#### 1.6: METHODOLOGY

Data collection methods.

Most of the information for the study was gathered from the field survey Government offices Libraries, the Municipal Council of Nyeri, the physical planning Departments both at Nyeri and Nairobi Lands office at Nairobi, the National Archives and local Government office at Nairobi.

The techniques employed in data collection includes personal interviews with Town planners at Nyeri, local government officials, Municipal council officials at Nyeri, public Health officers, the District officer the District development officer the enforcement officer and members of the public.

Three sets of questionnaires were administered two sets were mainly for the old township. These were household questionnaires whose aim was to reveal the structure of the population the household size, the source of income. Type of dwelling unit fuel used and services provided by the council. With this information one is able to know what developments are required in this area, what employment opportunities exists, what areas have potential what the is level of effective demand and whether the council is doing its work regarding services provision and development activities.

The third set of questionnaires was mainly industrial questionnaires, the aim was to show the built up area and whether those industries had some land left for future development. The questionnaires were also to reveal the employment characteristics and the source of raw materials and market for the finished products.

#### 1.7: Sampling procedures.

The survey was conducted on both the old township and the

newly extended areas, in the old township interviews were conducted at Kimathi Estate Manjengo area, Mt. Kenya area Blue Valley area and the central ward. In the Newly Extended areas surveys were conducted at Kamakwa, Kiganjo, Ruringu, and Ngangarithi areas.

This differentiation was done so as to see the developments that have taken place in the newly extended areas as compared to the old township.

The sample size was made up of 250 individuals from 250 household units. The housing unit constituted the sample, this was mainly a single room, a group of rooms or an apartment with a private access.

From 1979 population census figures relating to the number of households for the following areas were derived.

Area	Household size
Kiganjo	707
Kamakwa	804
Ruringu	1161
Ngangarithi	649
Town centre <sup>1</sup>	3522

<sup>1</sup> Manjengo, Blue Valley, Kimathi, Mt. Kenya and Central ward.

Among the 250 households interviewed 100 came from Newly extended areas, the remaining 150 were selected from the old township. These accounted for 2.5% of the total households in the old township.

Kiganjo, Kamakwa, and Ruringu are seen as the main centres of development outside the old township Nyeri. The central part of the town is seen as the core and tends to influence development in other parts of the municipality. The services offered by the council are mainly concentrated in these areas.

The actual procedure of drawing the sample in the old township was by counting every fifth household unit following an access road a single row, depending on the arrangement of the households in a given estate. In case of the absence of the owner the sixth of the fourth unit owner was interviewed.

The household head was interviewed, in case he was absent any other person above 15 years was interviewed. Map 3 was used so as to differentiate the old township and the Newly extended areas.

In Data analysis I have tried to tabulate the information contained in the samples so as to see the general characteristics of the population represented by the sample. In addition this information will assist me in trying to justify the criteria used

to expand urban boundaries. Some of the questions such as whether the urban council was deliver<sup>ing</sup> services to the people will be answered. It is also possible to know the earnings of the people as well as their income levels.

The technique used in data analysis is mainly simple descriptive technique.

2:0 STUDY AREA.

The chapter gives background information of the study area which includes historical growth location size social Economic characteristics of the region and the existing infrastructural facilities.

2.1: Historical Evolution of Nyeri Town.

Nyeri Municipality like many towns in Kenya is a colonial creation it stands within a formerly inhabited forest area known as (rware) which means an uncultivated place where there were no people living, no houses only forests and wild animals. Mainly Elephants buffalos and rhines.<sup>1</sup>

Nyeri Township was founded<sup>38</sup> a Security Post following an expedition sent from Fort Hall (Current headquarters of Muranga District) to subjugate the people of Tetu in Nyeri District. A whole caravan led by an Asian Trader had been wiped out while passing through Tetu and consequently traders had asked for protection from British soldiers. The Expedition arrived in two groups one from Naivasha passing though the Aberdare ranges and the other from Fort Hall.

The two groups had to fight their way through Tetu confiscating Livestock and burning houses as they went.<sup>2</sup>

1 Oral Evidence from field Survey.

2. Muriuki G. A History of the Kikuyu upto 1904. 1969 P.

The group from Fort Hall arrived in Nyeri first and camped below Nyeri Hill on 4th December, 1902. They were later joined by the group from Naivasha. The site lacked provisions and was prone to Enemy attack, a war council was held at the camp and a decision taken to call for reinforcements and build a fort. On 6th December, 1902 the camp was moved to the present town site. This new site was better in terms of defense and provisions. The fort was immediately built and surrounded by a deep protective Moat. Communal labour was used to build the fort. Before the end of 1902 the fort, the road to Muranga and Gura bridge were complete.<sup>1</sup>

In December 1902 the Fort was named Fort Nyeri after the most prominent feature of the area. Because of its strategic position Nyeri served as a centre of survey expeditions to the surrounding hinterland of Mweiga Karima, Chinga Nanyuki etc.

In 1903 2 prisons a guardroom an office and an officers house were build 4 Indian shops were built a Swahili butchery was started, and Chania Bridge destroyed by floods was rebuild. A few European pioneer settlers were among Nyeri's earliest dwellers besides the Military and administrative officers who

1 PC/CP/1/1/18) Provincial Record Book.



were stationed at Nyeri in 1905 Asian traders had followed the European government officials to the New settlement, these were Mohammed Ali, Allidina Visram and Osman Allu<sup>1</sup> They set their shops on small terrace on the side of chania valley where water and firewood were available. They traded goods with both the Europeans and the Africans who were beginning to recognise money as a medium of exchange.

Between 1902-1903 Missionaries of the Church of Scotland opened a small centre in Nyeri to teach Children and willing adults to read and write, and inculcate the fundamentals of religion. In 1903 the Catholic Missionaries of consolata society for foreign Missions of Turin Italy opened a small mission centre at Mununga-ini 4. km from Nyeri Fort. 3 Months later they opened another one at Mathari just below Nyeri Hill.

## 2.2: URBAN GROWTH.

On May 15th 1911 Nyeri was proclaimed a township. The order declared that the township was to comprise an area within a circle or radius one mile, with the government Fragstall as the centre.<sup>2</sup>

In 1912 Nyeri become the headquarters of the Nyeri District.

1. Oral Evidence from field Survey.
2. Official gazette 15th May, 1911 B.E.A.

The township was badly placed for administering the Province being located in the south-west corner of the inhabited area of the province.<sup>1</sup>

In 1913 the township was surveyed, the survey revealed that the township had 19 plots for Europeans 10 for Asians and two hotels. A post office was opened, and there was a proposal to set up a butchery.<sup>2</sup>

In September 1914 the Swahili and the alien residents began to occupy plots and to build the locations provided for them. Building in the new Indian bazaar commenced in 1914. A telegraph line connecting Nyeri with R.B coles farm to the west of the province Near the present site of Muiga was projected.

In 1915 3 Indian shops were completed in the new bazaar and the old location was vacated. A new European store was completed but not occupied. The white Rhino Hotel was complete but not opened.

Township roads were constructed 35 miles off Nyeri - Meru cart road was constructed and rivers bridged.

1 - Province of Kenya Annual Report 1917 - 1918.

2 - DC/NYI Annual Report 1914 .

Table 2:1

Population of Nyeri Township on 31st March 1915 was as follows:

Europeans	11
Goans	7
Indians	38
Swahili (Nyanwezi) and other aliens	215
Natives	250
Total	521

Source: Annual Report 1915 DC/NYI

Water for drinking purposes came from Chania and for other purposes from water furrow running through the station.

Rubbish was dumped in pits. The sewerage system was mainly bucket system in European houses these were collected by sweepers and emptied in four cess pits. In the Native areas and the police lines pit latrines were used.

The development of the town was very much influenced by racial policy and topography. Due to the ridge and valley Characteristics of the site the town was developed on the flat and higher parts of the ridges. Thus the central core of the town including the administrative commercial and residential areas were developed on the main ridge. Most of the buildings were elected along

one Major road the present Kimathi way running from the provincial Headquarters to the provincial Hospital. Another Major Road the present Kenyatta Road was built almost parallel to Kimathi Way as a major artery leading out of the town to Nairobi.

Residential areas followed a strict system of racial segregation. Early European settlement developed in the area west of the administrative offices and expanded along Baden Powell and Ring Road. Next to the offices S. Herd a prominent pioneer of Nyeri put up the first stone building, the Kenya General Store later on build opposite the store the oldest Hotel in Nyeri White Rhino. Which was opened in 1916. This become a busy corner of the new town offering all the basic services to the European Administrative farmers, hunters being at the same time a hotel a general store, a post Office a Bank and a telegraphic centre. In 1944 the Hotel was sold to Kenya Farmers Association.<sup>1</sup>

The Asian government officers, Goans and others settled in the central part of the town south of the Administrative block. Asian Commerce developed in the very heart of the town by 1920's along Kimathi way later they expanded to Temple road where they build a school, and to the Asian quarters.

Africans residential areas was first at the present site of the Ministry of works later they moved to Majengo site a section of which is still there with mud and timber houses constructed haphazardly and lacking the necessary infrastructural facilities. One section of Majengo was demolished and rebuilt with Tenant purchase scheme through U.D.C.

In 1927 the branch of the Railroad connecting Nairobi and Nyeri at Kiganjo station about 16 km from the township was completed. The choice of Kiganjo station was based on geographical advantages and being much more central to the European settled area.

In 1927 Outspan Hotel was rebuilt to meet the demands of the settler population and that of the tourists. As demand increased Treetops hotel was built as a subsidiary of the Outspan for Game watchers. By 1932 these two hotels had become very important commercial enterprises. These hotels made Nyeri enjoy an International reputation as one of the finest tourist places in Kenya.

Between 1933 - 1950 there is no information available regarding developments that took place in Nyeri.

The town however became very important because of its strategic position within the Kikuyu settled areas and the white highlands.






In 1952 it became the centre of massive military and administrative efforts against the Kikuyu resistance to the British Occupation of the land previously owned by the Kikuyu. Nyeri Township was one of the strongholds for the British repression of the Mau Mau Movement while at the same time it was a key centre for Mau Mau activities.

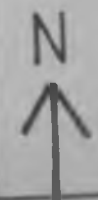
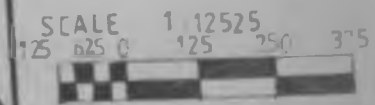
Despite its location in a rich agricultural area Nyeri has attracted very few Industries, records show that the oldest industry Highland Mineral waters Company Limited was set up in 1950, while Aberdare timber construction industry was set up in 1958. Map 4 - Historical growth of Nyeri town 1902-1958

In 1956 the office for the headquarters staff at Nyeri was undertaken by the Administration while in 1957 A housing estate consisting of <sup>114</sup> units at a cost of £650 each at Ruringu was started, at the same year a canteen and a club were opened near the General Hospital. In 1959 a new social hall was build by Urban district council which was set up in 1954. In 1958 an African was appointed to take charge of African affairs within the Nyeri Urban Council,. In 1963 Kenya become independent and an African councillor was elected by 1968 the council membership was all African.



——— TOWNSHIP BOUNDARY  
 = = = ROADS  
 - - - FOOTPATHS

-  EUROPEAN AREAS
-  EUROPEAN AND ASIAN COMMERCIAL AREAS
-  ASIAN QUARTERS
-  ADMINISTRATION BLOCK
-  AFRICAN AREAS (MAJENGO I)



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MAP N. 4

NYERI TOWNSHIP : HISTORICAL GROWTH 1902-1958

In 1971 Nyeri became a Municipality and its first mayor was elected. Its boundaries were officially extended to include 7200 ha. as opposed to 700 hectares set aside in 1911.

In 1968 a short term development plan was prepared, but with the new boundary changes in 1971 a planning committee was appointed to study and devise a new development plan for the Municipality to serve as a guide for future development.



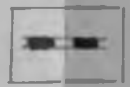

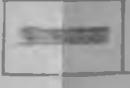

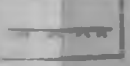
#### Geographical Location and physical layout.

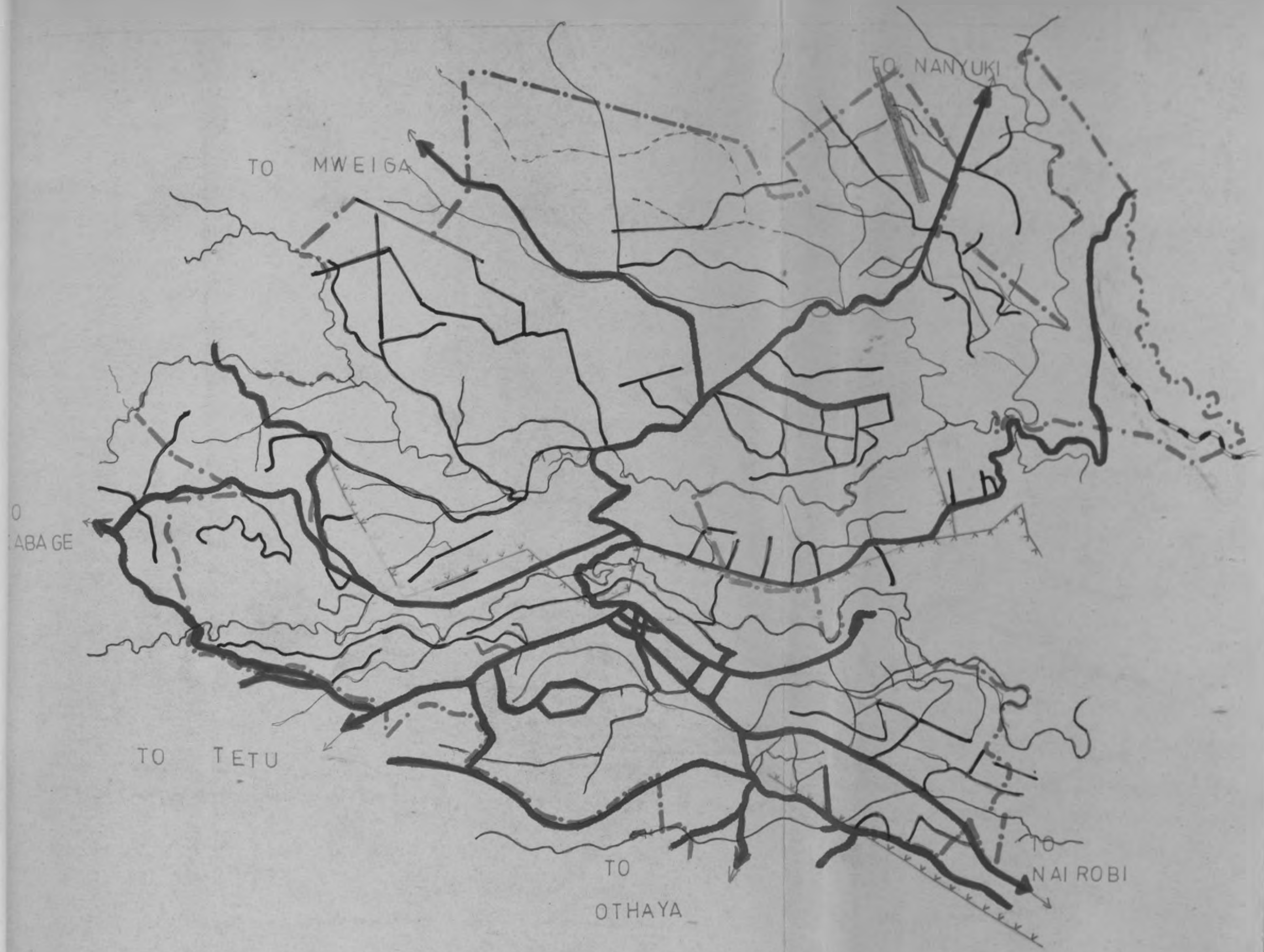
Nyeri town lies at the edge of a fertile Kikuyu plateau of central province it is situated about 147 km North of Nairobi on an International trunk road running Northwards to Ethiopia the only railway road branch that connects Nyeri with Nairobi terminates at Kiganjo station. Situated about 16km from the town. The town is served by a regional network of tarmac roads which links it to other centres such as Nanyuki, Meru Othaya Muranga, Nairobi, Nyahururu etc. The Eastern part of the town is dominated by Mt. Kenya, a mountain rising to 5243 metres. To the west of the town are Aberdare ranges rising to over 3692 metres. Not far from the town centre is Nyeri Hill a Prominent feature rising to 2525 metres, the town has taken its name from this Hill see Map 2 and Map. 5



# TRANSPORTATION

## LEGEND

-  MUNICIPALITY BOUNDARY
-  FOOTPATHS
-  RAILWAY LINE
-  MURRAM ROADS
-  AIRFIELD
-  TARMAC ROADS
-  POWER LINES



--- MUNICIPALITY BOUNDARY



SCALE: 1:50,000

# IYERI MUNICIPALITY COMMUNICATION NETWORK

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 U O N      M A 2      M A P N C 5

Its immediate hinterland is characterised by densely settled agricultural land which is the traditional homeland of the Kikuyu. The area is characterised by innumerable semi-parallel ridges separated by steep valley. This ridge and valley topography has made development of transportation network a very expensive undertaking.

The town separated the white farmlands and the Kikuyu native reserves. The original settlers were European administrators Asian traders African soldiers and servants.

Geology and Mining.

The principal rock formation are derived from volcanic rocks dating from tertiary to recent periods. This period is significant in that it resulted in the formation of Mt. Kenya to the East and Aberdare ridges to the west. The original lava flows which covered the undulating land have been weathered to form red soils which support Intensive farming activities.

There are no minerals of significant importance in this region. Geological Materials of Importance includes Lava (hard stone) Tuff (soft stone) and brick earth. Lava is suitable for surfacing bitumen roads, construction of road base and for making concrete aggregate, for building and other construction work. Tuff is used for construction and building and it is found in large quantities in Nyeri District. Brick earth is found in many parts of the district although it is not fully exploited. Quarrying is important, there are two main quarries one at Kiganjo the other at Thunguma. These two quarries provides building materials for most of the construction work in the Municipality.

CLIMATE.

The town though near the equator enjoys moderate climate because of its altitude which is 1826m (2943 ft) above sea level. The weather is generally good and the heat of the sun is seldom oppressive Even during the months of hot weather temperatures range between 10-22°C. During the Months of July and August thick mist swirl over the ridges and fill the valleys making the whole area very cold because of temperature inversion. The area receives an average rainfall of 1000 mm per annum. Rainfall occurs in two main seasons long rains falling normally in the months of April and May, and short rains falls mainly in the evenings and at night and can be exceedingly heavy and often accompanied by thunderstorms. In contrast, short rains fall during the day and are comparatively light and drizzly. This rainfall ensures constant water supplies rivers are perennial and water can be extracted without being detrimental to other uses.

February is the driest month and is hazardous to crops while July - August are the coldest months which brings frostbite to crops.

Vegetation.

The demand for agricultural land and demand for timber for construction and fuel have almost cleared the area of its original vegetation cover which once covered the settled parts of the region.

However, not far from the town there are several forest reserves where the original vegetation which covered much of the region as well as typical wildlife can still be found in abundance. These resources forms the basis of the tourist Industry in the region.

## CHAPTER 3.

3:0 Social Economic characteristics.3:1 Population.

In 1903 Nyeri settlement had only four Europeans a few Asian traders Swahili and Masai Askari soldiers who accompanied them. Only gradually did more Europeans Asians and Africans come to settle in town as facilities and job opportunities expanded. By 1916 Nyeri township had 513 people and by 1920 781 people.

Table 3:1 Population of Nyeri station 1920.

	men	women	Children	Total
Europeans	14	6	4	24
Goans	11	2	4	7
Indians	35	10	20	65
Somalis	106	5	2	113
Swahilis	73	57	110	240
Kikuyus	85	97	140	322
	324	177	280	781

Source: District annual report 1920-21

National Archives.

The population of Nyeri as recorded in 1948 1962, 1969

and 1979 population census shows a moderate rate of growth

Table 3:2

	1948	1962	1969	1979
Africans	1930	6256	8915	--
Non Africans	847	1601	1099	--
Total	2777	7857	10004	35743

above

The table shows a tremendous increase of the African population this could be accounted for by the Natural increase and migration into the town especially after independence. People moved into the town from the rural areas in search of gainful employment. In 1967 trade Licencing act opened new opportunities that attracted many people especially men into the town. Trade licences of many Asian non-citizens were not renewed and this gave the Africans an opportunity to take over the running of business activities previously operated by the non African traders. <sup>1</sup>

According to 1979 population census Nyeri Municipality had a population of 35743 compared to 10,004 in 1969 census. Taking into account the 1971 boundary changes which increase the area

1. Dutto. S.A. Nyeri Townsman Kenya

S.A. Literature Bureau.

of the township 10 fold one can conclude that the increase in population has not been very significant.

The population distribution is characterized by low population density in the former European scheduled areas such as Nyaribo ward where the density is  $173/\text{km}^2$ . and high population densities in the formerly African residential areas where the population densities are 371 persons per hectare at Majengo area.

Table 3.3: Population by sex.

	1948	1962	1969
Males	1343	4728	5957
Adults	1115	3356	4360
Children	208	1372	1597
Females	535	3129	4047
Adults	155	1782	2356
Children	380	1347	1691

Source population census 1948, 1962, 1969.

In 1948 32% of the population comprised of children while in 1962 and 1969 children comprised 32% and 35% respectively.



Table 3.4: Population by age and sex 1979.

Age	male	Female	Total
0-4	2852	2841	5693
5-9	2353	2371	4724
10-14	1718	2042	3760
15-49	10961	8127	19088
50 <sup>+</sup>	1338	1099	2437
Total	19222	16480	35743

Source: 1979 population census.

The above table shows that the working population constitutes about 54% of the total leaving 46% as the dependants. The growth of Nyeri between 1948 and 1962 was 9.1% and between 1948 and 1962 was 12% per annum while that of 1962-1969 and 1969-1979 was 3.5% respectively.

This drop in population growth in the later periods could be accounted for by migration of people in larger towns such as Nairobi, Mombasa, and Nakuru where employment opportunities were higher than Nyeri Municipality which is regarded as an administrative centre rather than an Industrial centre.

For projecting the population of Nyeri a rate of growth of 3.5% per annum is adopted it is assumed that the growth of the small towns in Nyeri District such as Othaya, Karatina and other rural centres will reduce the number of would be migrants to the Nyeri Municipality.

The projected population by the year 2000 will be

rate of growth	1979	1989	1999
3.5% p. annum	35743	50419	71121

### 3:2 The Economic base.

Nyeri Township is located at the heart of central province, hence its selection as an administrative centre. It provides Marketing services for densely populated catchment area. The Economic base of the town is mainly provision of services to the town itself and its interland.

The major economic sectors and their importance in terms of job creation are shown in table.

Table 3.5: Employment by sector.

Sector	1972	1973	1974	1975	1976	1977	1978	1979
Agriculture								
Forestry	218	17	210	194	56	117	149	142
Mining								
Quarrying	-	-	-	-	36	32	45	--
Manufacturing	237	168	321	360	259	364	251	386
Electricity								
Water	65	93	116	172	171	190	179	197
Construction	820	923	678	956	1012	1233	1167	1147
Wholesale								
Retail								
Restaurant								
Hotel	789	545	875	620	727	747	782	610
Transport								
Communication	220	146	676	368	324	439	72	87
Finance								
Insurance								
Real Estate	144	179	182	194	238	295	316	467
Business								
Services								
Communication	3373	2388	2352	2477	2539	2338	2923	3515
Social								
Personal services								
Total	5866	4443		5341	5362	5755	5884	6551

Source Employment and earnings 1972 - 1979

Ministry of Finance and Economic Planning.

The table shows that the number of Employment has been fluctuating between 1972 and 1973. This decline could be accounted for by a decline in Agriculture and forestry sector, the 1971 drought could have affected the sector there was a decline in Manufacturing Wholesale, retail, Restaurant and Hotel transport and communication the Economy was experiencing a depression. However between 1974-1979 this was the period of coffee boom this had a significant effect in terms of Employment in different sectors of the Economy.

The table also shows the significance of the communication social and personal services sector, this sector accounted for 53.7% of Employment in Nyeri in 1979. The second important sector was construction in 1979 it accounted for 17% of Employment.

A sector which has not shown much activity and it is expected to contribute even more to employment in future is manufacturing as the absorption force of the civil service is limited. This assumption is based on the fact that the sector is not fully exploited hence there is potential to employ more labour as it is the case in other Major towns like Nairobi and Mombasa. Returns in this sector are high and have a higher multiplier effect to the whole economy.

### 3.3 : Employment and Income.

Table 3:6 below shows the monthly distribution of all wage employment and Income groups in Nyeri Township 1974-1979.<sup>1</sup>

	Under	150-	200-	400-	700-	800-	1000-	1599-	2000-	3000-	6000 <sup>+</sup>	Total
Year	150	199	399	699	799	999	1499	1999	2999	5999		
1974	283	378	1450	1142	151	664	262	149	86	49	-	4614
1975	1110	136	1548	889	116	296	343	202	126	71	-	9286
1976	121	140	1637	1721	207	278	336	184	162	97	12	4945
1977	58	370	1543	1522	423	359	457	174	205	124	17	5252
1978	13	154	973	1572	516	377	499	273	266	160	20	4773
1979	13	189	694	2541	870	301	602	515	296	153	15	5882

Source: Kenya Statistical Abstract 1974-1980.

1. These figures excludes casuals unpaid directors and unpaid family workers

From the above table about 58.4% of Employees in Nyeri township were earning less than 700/- per month, while about 92.2% were getting less than 2000 /- per month, in 1979. This has some implications on effective demand in that few jobs are created through Multiplier effects hence unemployment

3.4 : Labour force.

Nyeri had 19088 persons aged between 15-49 years in 1979.

This accounted for 54% of the total population. This population is taken to represent the labourforce.

According to wage rate distribution table only 5882 persons were employed in 1979 this accounted for 31% of the total Labour-force leaving 69% as unemployed underemployed, or self employed in the informal sector.

Table 3:7 below shows the distribution of the self-employed

unpaid family workers in various sectors of employment.

	1974	1975	1976	1977	1978	1979
Agriculture						
Forestry	7	7	10	6	2	4
Mining						
Quarrying						
Manufacturing	25	36	215	229	-	-
Electricity						
Water	--	1	--	-	-	-
Construction	14	24	22	9	10	13
Wholesale						
Retail trade	187	298	1281	943	942	564
Restaurant						
Hotels						
Transport	405	229	234	238	17	9
Communication						
Finance						
Insurance						
Real Estate	17	15	20	22	18	22
business						
Services						
Community						
Social and	32	57	267	336	325	163
Personal						
Services						
Total	687	667	2049	1783	1565	1027

Source: Employment and earnings in the modern sector 1974-1979.

The sector which had the greatest number of self employed and unpaid family workers in 1979 was wholesale Retail trade Restaurants and Hotels. This sector accounted for 59.5% followed by community social and personal service which accounted for 15.9% of the total in 1979. In the same year 11999 people were absorbed by the informal sector.

### 3.5 Industries.

Nyeri is a minor Industrial town it has three major categories of Industries which includes agricultural and food processing Industries non-agricultural industries and tourist industries. The non-Agricultural Industries dominate the towns Industrial sector, the main industries includes KCC at Kiganjo opened in 1969. The industry is the milk collecting and processing centre for the whole of the agricultural belt between Aberdares and Mt. Kenya. The industry employs 99 people and process an average of 80,000 litres of milk per day. It has a capacity to process 100,000 litres /day. Some of the finished products are consumed locally and others are exported to other countries. The Highland mineral water company limited and Mt. Kenya bottlers company produces soft drinks, these supplies the town and the immediate hinterland they have employed 400 members of staff. Production fluctuates according to demand which is governed by seasons.

Near the Ministry of works site, there is a posho mill, this is power driven and services large scale farmers and several shops in town.

Other minor food Industries includes local bakeries such as united bakery rivalled by Elliots bakery.

The leading non agricultural industries are timber Industries, these get their raw materials from Mt. Kenya and Aberdare forests. The timber Industries includes Aberdare timber construction company this industry employs 50 workers. The wananchi saw mills it employs 170 people at a cost of 1 million per annum. Mbau saw Mills at Kiganjo employs 200 workers these includes casuals the sawmill has a production capacity of 6760 tons per annum. The timber industries supplies the informal sector with raw materials such as cut timber, and fuel in form of firewood.

The M.K. casements and Fume Co. works are small scale industries dealing with metal works they serve the construction industry as well as the informal sector M.K. casements employs 20 people while Fumeco works employs 8 people. These two industries serve the construction industry as well as the informal sector. The Fumeco works employs labour at a cost of 70,000/- per annum. They provide window and door frames wiremesh etc.

In addition to these, there are small shops where artisans and carpenters build furniture of various kinds. The tropical trading company has the monopoly of building stone and concrete manufacturing.

Among the service industries Nyeri has several garages a motor vehicle repair workshops. The three major one are Nyeri Central garage Marshalls East African Limited and Nyeri motor works, The town has two printing press, one at Mathari, the other at Nyeri town.

Several Minor footwear manufacturers repair workshops and other light industrial establishments can be found in commercial areas, others are scattered in other parts of the Municipality.

#### Estates

Kenya Industrial<sup>^</sup> has assisted in establishment of some industries above others includes a shoe making factory and a Tailoring unit.

The tourist industry is well established the Aberdare National park, and Mt. Kenya Game Researve with their scenic builty provides tourist attractions. There are many Hotels in Nyeri, these includes, the Ark Mt. Kenya Safari Lodge, Outspan Hotel, and Treetops that is supported by tree trunks offers a unique view of wild animals ingeniously attracted by a lighted water Pool down below. The industry Employs 700 people and <sup>in</sup> one year about 30,000-35,000 tourists visit the town.



### 3.6: Informal Sector.

The sector is statistically less known however, there are some figures prepared by the world bank in 1978.

Table 3.8 shows Employment by Industry in the informal sector in Nyeri.

Manufacturing	construction	Retail trade	Transport	Service
199	1	1191	13	204

Source: world bank 1978.

Total employment by industry in the above sector was 1608 in 1978. This accounted for about 27.3% of all urban employess. The sector provides employment to the unemployed, and it absorbs people who migrate from rural areas into towns hoping to be employed in the modern sector.

### 3.7.0: Infrastructural facilities.

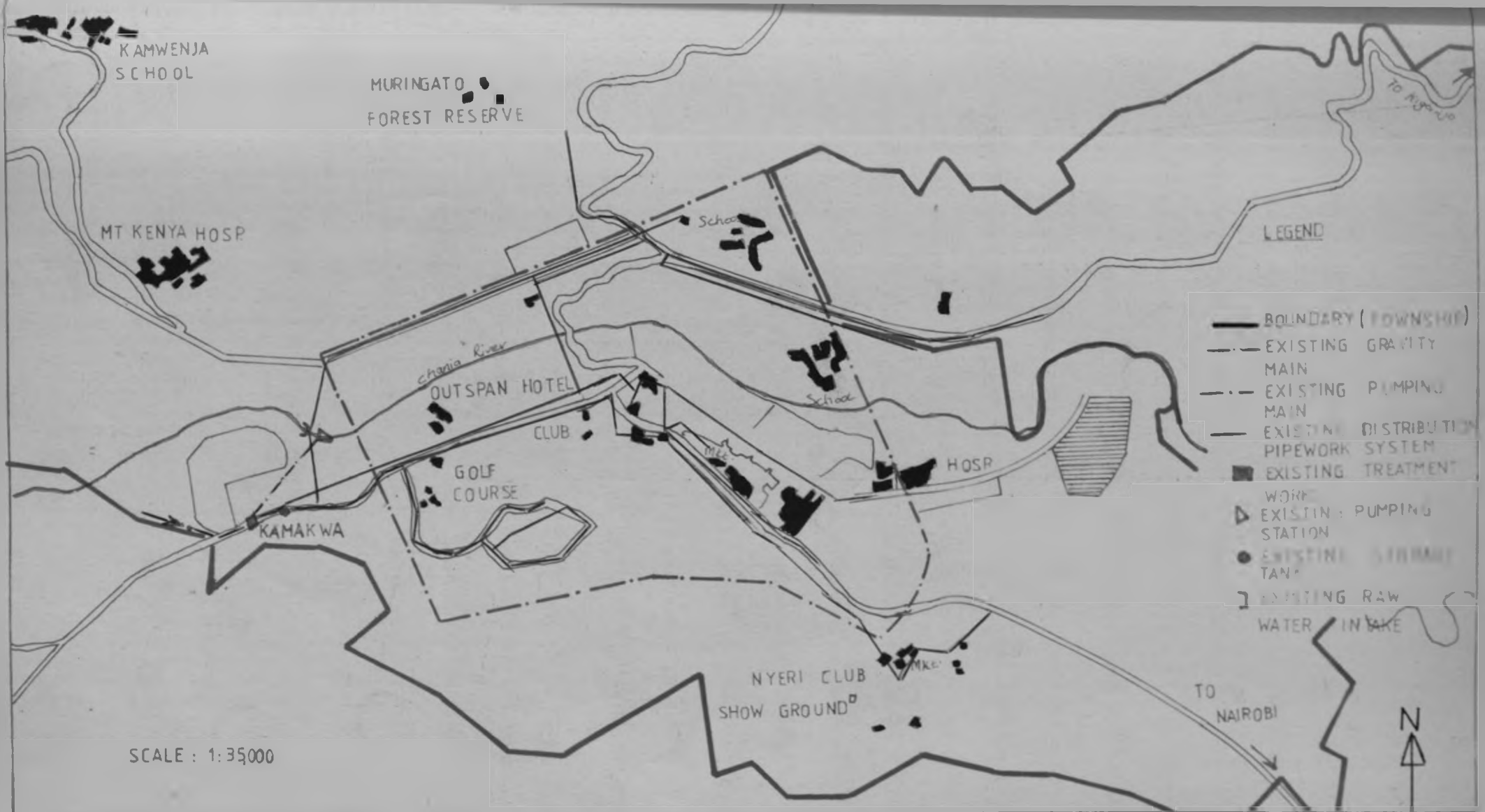
As population increases demand for provision of basic services such as water roads, health facilities, education sewerage facilities, increases. The supply of these services is constrained by lack of funds and manpower failure to meet the demand for these services has resulted in overloading and associated problems of Inadequacy. This section attempts to show the situation as it exists today in Nyeri Municipality.

### 3.7.1: Water Supply.

Chania river is the source of water supply for Nyeri, water is abstracted from two locations the first one is 7 km west of the town where mass concrete intake across the river diverts water under gravity through 150mm diameter Pvc pipe, to the town treatment works. see map 6.

The water supply for Nyeri is not adequate for both industrial and domestic use. For this reason there is frequent rationing of water to consumers. However the Ministry of Local government has already allocated funds to design and construct a new water supply to augment the existing one. The original water works was build in 1930 while the present system was installed in 1959. This new system have a maximum capacity of  $2160\text{m}^3/\text{day}$ . This falls short of the amount of water consumed per day by  $1140\text{m}^3/\text{day}$ . Total amount consumed per day is  $3300\text{m}^3/\text{day}$ . The balance is abstracted through a stilling well intake also on chania river roughly 700 m from the treatment works. Three electric pumps housed in a building adjacent to the intake deliver the water to the treatment works where it is convectionally treated through upward flow sedimentation tanks and rapid gravity filters. ✕

Pre-treatment Chemical dosing of alum and soda ash together



# NYERI WATER SUPPLY SYSTEM.

DEPT OF URBAN AND REGIONAL  
 PLANNING  
 UON  
 MA 2  
 MAP N. 1

with Post-treatment dosing of chlorine and soda ash are undertaken at the works. A  $45\text{m}^3$  capacity elevated steel tank provides water for backwashing and  $1135\text{ m}^3$  ground storage tank pressurises and feeds the distribution network. The network is quite extensive but in many places small bore Pvc pipework precludes expansion.

The proposals for the new water supply includes a new raw water pipework from the existing gravity intakes. A new treatment plant with six upward flow sedimentation tanks and rapid filters: a new storage tanks both at the treatment works and at strategic locations within the town and an extra distribution pipework. The new system will use water from Chania river which is capable of run-off river yield of upto  $26000\text{ M}^3/\text{day}$ , without detriment to other users. All new works have been designed with an initial capacity of  $15,000\text{m}^3/\text{day}$  which is the estimated demand for Nyeri by the year 2000<sup>1</sup>.

Once the new works have been commissioned the water supply system in Nyeri will have more than sufficient capacity to meet demands imposed by the provision of any new housing schemes or upgrading of the existing settlement as well as Industries which might locate there.

- 
1. Republic of Kenya Ministry of works and Housing  
Third urban Housing project Draft final report  
Nyeri Municipal Council.

Kiganjo is served by water works adjacent to the police training centre. Water is extracted from Amboni river. Piped water is only provided in the old township, however main water pipes are provided by the council within easy reach. In other areas, Individual have to buy pipes and connect water to their plots. From field visit it was found that the majority of the people in the newly extended areas use water from nearby streams a few have bought water tanks. Only those who have developed their plots have piped water. This could be explained by the fact that owners have to buy their own pipes and pay connection charges. Pipes are dry for most of the time which indicates that supply does not meet demand.

Table 3.9 shows monthly water consumption for estates Industries and institutions in 1978.

Number of water meter connections		Name of the Estate Industry or Institution	Monthly consumption in M <sup>3</sup>
1.	273	Kimathi Estate	8654
2.	183	Govt. Quarters	8701
3.	254	Town area	11231
4.	83	Wambugu farm	3197
5.	160	Kingongo Area	11176
6.	300	Ruringu area	2979

7.	112	Kangemi/Blue valley	3197
8.	100	Majengo	5928
9.	126	Kamakwa	3997
10.	126	Asian Quarters	5928
11.	1	Mt. Kenya Bottlers	4792
12.	1	Nyeri Technical High School	6296
13.	1	Kimathi Institute of Technology	3000
14.	3	G.K. Prison	8600
15.	1	Provincial General Hospital	3823
16.	2	Highlands Mineral waters	3500
17.	1	Nyeri Municipal Council offices	360
18.	1	Slaughter house	763
19.	2	Municipal council houses	3800
20.	2	Ministry of Natural Resources	1092
21.	1	Game department	440
22.	1	Baptist Boarding Sec. School	998
23.	1.	Nyeri Boarding Sec. School	4616
24.	1	St. Mary Secendary School	166
25.	1	M.O.W. Provincial Engineer	531
26.	2	Wambugu F.T.C.	1434
27.	2	Kirimara F.T.C.	1500

28.	1	Simba Building constructors	280
29.	1	White Rhino Hotel	133
30.	1	Mt. Kenya Lodge	548
31.	1	Administrative police lines	450
32.	1	Aberdare construction	228
33	1	Mt. Kenya Hospital	315
34	1	Federal High School	293
35.	-	Outspan Hotel	3300

Source: Ministry of water development

IB Patel and Mangat Patners.

Below is another table showing the amount of water produced and sold in 1979/80 for both Nyeri and Kiganjo.

Table 3:10 1979.

Month	Water sold in M <sup>3</sup>		Water produced in M <sup>3</sup>	
	Nyeri	Kiganjo	Nyeri	Kiganjo
July	99076	24716	99556	24965
August	104198	24270	105561	24640
September	102822	26782	104242	27329
October	103239	25049	104679	26313
November	103696	24216	105110	24466
December	99027	20842	100039	21216
January	107145	23798	108436	24368

February	111739	26445	113269	27065
March	112143	24843	113283	25461
April	137859	22231	139307	22461
May	142602	23219	144164	23471
June	118517	26729	119540	26997

Source: Treasurers daily summaries of monthly water receipts Nyeri Municipal council.

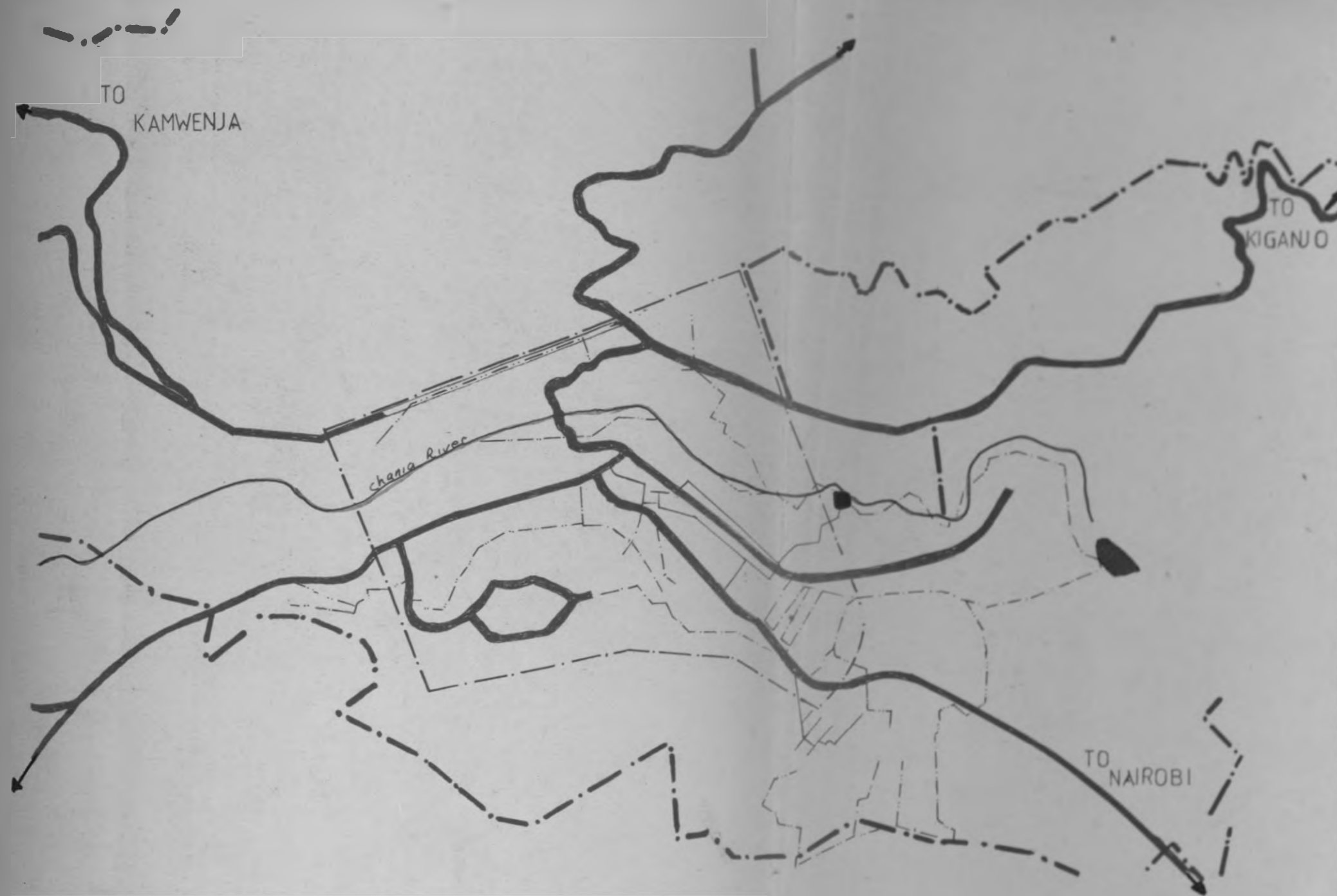
The table shows that the demand for water is increasing this will have to be catered for by the proposed new water supply works.

### 3.7.2      SEWERAGE SYSTEM.

This is a major capital development that requires urgent attention. The town is served by a foul sewerage system and sewage works built during 1958-60. The system comprises approximately 4.8 km of small diameter concrete sewers. The system serves only the council rented houses, Nyeri provincial Hospital and the central part of the town. About 30% of the properties which can be served by this system have been connected, but as the treatment work is overloaded and often out of service <sup>hence</sup> connection is not being encouraged.

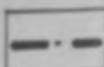
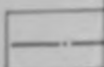
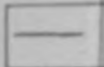
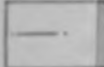
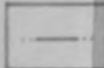


See Map No. 7





# NYERI SEWERAGE SYSTEM

## LEGEND

-  MUNICIPALITY BOUNDARY
-  OLD TOWNSHIP BOUNDARY
-  EXISTING SEWERS
-  PROPOSED SEWERS PHASE I
-  PROPOSED SEWERS PHASE II
-  EXISTING SEWAGE TREATMENT WORKS
-  PROPOSED SEWAGE TREATMENT PLANT



SCALE - 1:35000

DEPARTMENT OF URBAN AND REGIONAL  
PLANNING  
UNIVERSITY OF NAIROBI

MA II

1981/82

MAP N° 7

The flows are equivalent to a total daily sewage flow of about 400-450 m<sup>3</sup>. There is no flow recorder at the existing treatment works and therefore accurate measurements have not been maintained. In the low density areas of the town septic tanks or pit latrines are used, From field survey, it was found that 11% were using septic tanks 47% sewers and 42% were using pit latrines in the old township. In the newly extended areas 86% were using pit latrines and 14% were using conservancy tanks. The existing treatment works requires some repair, the treatment works was not functioning at the time of my field visit untreated sewage was finding its way into Chania river. The sewage treatment works for Nyeri town was not functioning at the time of my field visit Kiganjo is served by a treatment works at the police training college. This treatment works was not working at the time of my field survey. Kagumo High School is served by an Oxidation pond which has never operated satisfactorily. The central part of Kiganjo is served by a nightsoil bucket system and a small private treatment plant. Most of these small treatment plants are in varying stages of disrepair.

As an attempt to solve these problems, the Municipal Council Commissioned a preliminary study for Nyeri in May 1972 consequently

in June 1974 the government commissioned a sewerage Master Plan upto the year 2000 A.D. for Nyeri. This report was delayed due to lack of funds. Final report was presented to the government in April 1978 when the African Development Bank agreed to finance the project. Final design work for the first phase of the project is complete and implementation has already started.

### 3.8.0: Social services.

#### 3.8.1: Education

Nyeri is served by 12 primary schools 9 secondary schools 6 privately and 3 government operated. The primary schools includes, Thunguma, Kiganjo, Nyeri Primary Temple Road, St. Mary's P.C.E.A. Primary School at Kingongo Prison and Kamakwa Primary School. There are plans to build more schools to cope with demand.

The first secondary school in Nyeri town was Nyeri High School which was opened by the missionaries in the 1920's. Since then it has grown to be one of the largest in Nyeri Municipality.

Other secondary schools that were opened much more recently includes St. Mary's HighSchool opened in 1960, The Temple Road and Federal High School opened in 1965, Baptist High School in

1. Oral evidence from field visit as well as reports on water projects from Ministry of water development.

1966 Ruringu and Thunguma High School were opened in 1968.

These schools cater for students not only from Nyeri Municipality but also from the District and the province. A few come from other parts of the country.

There are a number of nursery schools existing in the municipality and there are proposals to build others to cater for the children at the age of  $3\frac{1}{2}$ -6 years. The Municipality has a Teacher Training College Kamwenja which caters for both men and women trainees not only from the District but also from the rest of the country.

In addition there is a Technical School (Nyeri) an institute of Technology (Kimathi) where a wide variety of courses are taught. The town has two commercial schools Nyeri Advanced Commercial college which is run on Part time basis, and the Cathedral Commercial School which is a catholic sponsored college which provides boarding facilities.

Wambugu Farming Training centre is the only institution which provides young and old people with short courses in Farming methods, Co-operative Organisation, leadership women's clubs and self-help groups. The Institution operates at District level.

### 3.8.2: Health.

The provincial Hospital provides specialist medical treatment to the entire province other hospitals include Mt. Kenya, and

Mathari Mission Hospital. These two hospitals have a nursing Training programme and cater for the people mostly from the district. At Kiganjo, there is a health centre as well, an outpatient clinic for children and mothers attached to the mission Hospital. During the current development plan, the government intends to spend Kenya £ 1,697,000 on health facilities mostly in the Municipality by extending the Provincial General Hospital.

### 3.8.2: Refuse Collection.

The local authority operates a daily collection service in the town centre the refuse is tipped in a special pit which has sufficient capacity upto 1982.

In some parts of the township such as Kiganjo, Kingongo, Ruringu and Kamakwa refuse is dumped to a controlled point where it is collected after some time or it is left to rot.

From field surveys it was found that 20% were using uncontrolled dumping mainly in the newly extended areas 16% had distbins 11% used compost pit, and 9% inceneration 44% controlled dumping. This controlled dumping was mainly in the satellite towns of Kamakwa, Ruringu, and Kiganjo area. In other areas outside the satellite towns but in the newly extended areas refuse was used as animal feed or farm manure.

## Chapter 4

### Establishing a criteria for Urban boundary Extension in Nyeri Municipality

#### 4.0: Introduction

In this chapter primary and secondary data is analysed so as to get the knowledge of population characteristics housing type and services offered by the Municipal Council.

Land use requirements for the future are calculated on the basis of projected population by the year 2000, land suitable for development has been calculated on the basis of slope. On the basis of existing development trends and the anticipated future needs criteria for urban boundary extension for Nyeri Municipality is made.

In the previous chapters and in particular chapter one, factors used in justifying urban boundary extension have been examined. The commission on boundary extension based its recommendations on population growth in Nyeri Municipality, uncontrolled developments in the peri-urban areas and rural-urban migration resulting from land pressure. This criteria followed by the commission appeared to be subjective and intended to guide development in the Municipality.

This chapter endeavours to review the prevailing conditions in Nyeri Municipality so as to propose an objective criteria that could have justified Nyeri township extension.

4.1: Population characteristics in the old township.

Interviews were conducted with 150 house-hold units in this area. The aim was to get the average household size and the age of the household members. This information will serve as a guide in calculating landuse requirements for the present and the future.

The average household size was found to be six. Household members between the age of 0-15 accounted for 41% the rest accounted for 59%.

SOURCE OF INCOME.

The aim was to get the most significant sector in terms of employment. Table A-1;

Sector of Employment	Household head	Percentage
Agriculture	3	2
Commerce	14	9.3
Industry	18	13.3
Formal	104	72.7
Other (Informal)	11	3.7

Source field survey.

Formal sector which mainly includes employment in the civil service is most significant employing 72.7%. Commerce and Industry were the second largest sectors offering employment.

From field survey only eleven people were employed in the informal sector. Of the total five were carpenters four were mechanics two were hawkers about 5.6% were obtaining income from both the formal and informal sector. the main activities noted in the sector included tailoring shoeshine, shoe repairing, carpentry electrical work watch repairing, sale of second hand clothes. The employment in the sector was either on part-time or full time basis.

#### Earnings.

This includes total earnings of the household members. The classification into various income groups serves as a guide to determine those in the low, medium and high income group as spelt out in the Waruhiu commission Report.

#### Building Material.

Interviews regarding building materials were conducted, with an aim of getting the source of raw materials and the type. The main types of building material in the old township Included stone, Iron sheets timber wood, mud cartons and polythene material building stone accounted for 80% as floor material and 74% as wall material. Iron sheets are used for roofing purposes it accounted for 71%.



Except for Iron-sheets, Asbestos the rest of the building material is obtained locally stone comes from Kiganjo and Thunguma areas Timber comes from sawmills located in the Municipality. These get raw materials from Mt. Kenya and Aberdare forests.

Below is a table indicating the types of houses in the

<u>Type of House</u>	<u>number</u>	<u>Percentage</u>
Bungalow	4	3
Flat	8	5
Semi-detached	94	63
Maisonnete	19	12
Cum-Residential	11	7
Slums	3	1

Source: Field Survey.

Semi-detached type of houses characterises the housing types they account for 63% of the total followed by maisonet which accounted for 12%.

About 90% of the households visited had no kitchen or a bathroom. Residents had the desire to move to other household units where these facilities were provided. Lack of better household units at a reasonable rent charges were the main constraints.

The idea of sharing a kitchen, a bathroom and a toilet was disliked by the majority who were sharing. Some were using their living rooms as bathrooms and kitchen. In some cases the bathroom and the toilet were separate and far removed from the living rooms thus creating inconveniences for the users.

### Services.

#### Water supply.

The main source of water included piped water, about 57% of households had piped water majority were using communal stand pipes 18% were getting water from nearby streams 15% has to buy water at a cost of 25-30 cts a debe. 3% were using raw water from Chania, the rest were getting water either from a borehole or rain water.

Refuse collection Methods Table 4:3

<u>Method</u>	<u>number of households</u>	<u>Percentage.</u>
		%
Uncontrolled dumping	30	30
Dustbins	24	16
Compost pit	16	11
Inceneration	13	9
Controlled dumping	66	44

Source: field survey.

The central part of the town was the only place where the council was collecting garbage at regular intervals. In other areas where controlled dumping is the main method accounting for 44%. It is not unusual to find heaps of garbage letting in the dumping places. This indicates that the council is not efficient in this field. The dumping places have turned out to be the breeding grounds of rats and insects. Uncontrolled dumping accounts for 20%. The council does not collect garbage in these areas. Garbage is dumped anywhere in the compound though few people use it as manure for their vegetable gardens. This indicates that the council is a long way off in provision of services.

#### Fuel used.

The fuel commonly used is charcoal and paraffin. Other types includes gas electricity and firewood it was rare to find only one type of fuel being used, a combination of two or three was very common.

Charcoal and firewood were mainly obtained from the surrounding areas of Mt. Kenya forests and from the New Settlement areas of Uaso Nyiro and Ndaragwa areas where forests are being cleared to give way to Agriculture.

The expenditure patterns on fuel further indicates that more money is spent on charcoal than other types of fuel. 86 households were consuming 1 bag of charcoal per month 33 households were consuming 2 bags two households were using two and the rest were using less than 1 bag of charcoal combined with other types of fuel.

Travel distance to the various social facilities was as

follows:-      Table 4.4:

	Under / Km	1-2	2-3	3 <sup>+</sup>
Shopping centre	91	40	13	6
Primary school	57	42	37	14
Health facilities	47	34	33	13
Recreation facilities	66	33	23	11
Place of work	45	47	31	26

The distance travelled by majority of the people in the Urbanised areas ranged from less than one kilometre to more than 3 kilometres. The distance travelled depended very much on the Location of the social facility from the Residential areas. Except for health facilities and travel distance to place of work other facilities are located within a reasonable distance.

### Modes of Transport.

There are six modes of transport identified in Nyeri Municipality namely Matatus Buses, foot, private car Bicycle and company car. From field survey foot was found to be the most common mode of travel accounting for 59% of the total.

The predominance of walking can be attributed to lack of well organised Intra-Urban transport. Use of Matatus is becoming increasingly important. Matatus account for 17% of travel modes and they normally serve the satellite towns of Kamakwa, Kiganjo, Kamuyu and Mathari areas, the low percentage of private cars indicate that few people in the town own cars.

### 4.2 Population characteristics in the newly extended areas.

100 household members were interviewed from the age structure of household members. The average household size was found to be 6 persons. About 45.1 % of the household members were below the age of 15 years. The others were above 15 years.

### Source of Income:

Employment in different sectors was as follows: Table 4:5

Sector	No.	Percentage.
Agriculture	57	57
Industry	21	21
Commerce	15	15
Informal	3	3
Formal	4	4

source:field survey.

Agriculture is the main sector of employment.

It accounts for 57% of the total employment other important sectors includes commerce and Industry

Earnings:

From field survey 67% of total household heads were earning less than 1000 shillings per month. 20% were earning between 1000 and 2000 shillings per month. The people who were getting over 2000 shillings per month were mainly those who had build rental houses.

Travel distance.

Travel distance ranged from less than 1 kilometre to over 4

kilometres. Table 4.6

Travel distance to:	Under 1 km	1-2	2-3	3-4	4+
Shopping centres	30	43	15	7	15
Place of work	53	10	6	23	8
Health facilities	23	28	34	8	7
Primary School	21	23	25	30	2
Cinema Threatre	12	17	22	34	15
Nursery school	42	31	19	20	--
Playing fields	15	11	18	32	24
Social Hall	12	17	22	34	15

Source : field Survey.

Some people have to travel for long distances to reach the available social facilities this is attributed to the fact that these areas are still rural in character.

#### Travel mode.

Six modes of transport were identified foot, buses, matatus, bicycles company and private car. Foot is the most important mode of travel and account for 36% followed by matatus 24% and buses. Few people use private or company cars.

#### Size of the farm.

About 71% of the farm holdings were less than 5 acres. The main activity that was being carried on in the farm was mainly agriculture which accounted for 29%. Field survey showed that a combination of activities was taking place in the farm holdings. The intended forms of development included improved agriculture this accounted for 48% rental houses 31%. 17% had the intension of subdividing their farms and sell plots. The council was not collecting rates from these areas due to lack of proper machinery for collecting rates.

#### Housing type.

It was difficult to get a clear picture of housing types in the Newly Extended areas, this is because in each of the farming units there was more than one structure, however depending on the age of the structure there was an improvement in the construction material.

The building materials ranged from stone, timber mud, chalk for smearing the wall thatch ironsheets Bricks.

Thatch and ironsheets are used as roofing material they accounted for 31% and 62% respectively, wall material included mud smeared with white chalk, timber and stone. Floor material was mainly earth accounting for 76% and stone which accounted for 19%. Most of the building material is obtained locally from the Municipality or the District.

#### Services.

##### Water supply

About 56% were getting water from streams only 22% had piped water 9% were getting water from a borehole 7% from a river and the rest were using rain water.

The council has not been able to provide piped water to the people in Newly extended areas: Piped water in the developed plots is accounted for by individual efforts.

##### Sewerage system:

92% were using pit latrines while the rest were using conservancy tanks.

##### Electricity

70% of total households interviewed had no electricity connections 30% had paid to have electricity connected to their plots. These are the people close to the power lines or people who had developed their plots.



Nature of access roads:

Most of the access roads are dry weather roads 79% of the households use these types of roads 79% had murrum roads only 2% had tarmac roads.

Refuse collection

Refuse in these areas is not a problem. It is used either as manure or for feeding animals 4% had their refuse collected by Council 7% had a compost pit 2% were burning their refuse.

Cooking Media.

The most commonly used media was open hearth and jiko households using both media accounted for 76% 10% were using only jiko 12% open-Hearth, the rest were using a combination of the others. Mainly gas cooker, electric cooker and paraffin stove.

The type of fuel used included charcoal firewood, paraffin, gas and electricity. The high percentage use charcoal and firewood indicates that the people living in the non-urbanised areas are rural type of life, this also indicates the link between the Municipality and the hinterland.

The source of fuel.

This comes from the farms in form of firewood charcoal and the rest of the fuel is bought, some people buy firewood from the saw mills, or they get firewood, , in exchange of their labour.

LAND REQUIRED FOR NYERI MUNICIPALITY BY YEAR 2000 A.D.4:3:0: Introduction

To ensure planned development of Industrial area in the foreseeable future. It is necessary to assess the Land requirements for Nyeri Municipality for the next 20 years. An attempt is made here to illustrate the method of calculating future Industrial land requirements.

The population of Nyeri by 1962 census was 7857, 10,004 in 1969 and 35,743 in 1979. The intercensal growth rate for the two periods 1962-1969 and 1969-1979 was 3.5% per annum. This rate of growth has been used to project future population for Nyeri upto the year 1999. This rate of growth is adopted since Nyeri is an administrative centre and population growth is not expected to change very significantly.

The current strategy of concentrating Urban development in selected centres such as Othaya, Karatina and other rural and Market centres will promote the formation of small towns in rural areas as these towns grow, they will form a level of Urbanisation which will be large enough to be economically served with public water supply sewerage disposal electricity Postal telephone and banking facilities. These towns will tend to attract Commercial and Industrial development which will attract more people from the rural areas by providing improved employment opportunities.

Taking a rate of growth of 3.5% per annum. By 1989 Nyeri township will have a population of 35743  $(1+3.5/100)^{10}$  = 50419 and by the year 200 the population of Nyeri Municipality will be  $50419(1+35/100)^{10} = 71121$ .

This projected population is used to calculate the amount of land that Nyeri will require by the year 2000.

#### 4.3.1 Land Required for Industrial Development

To calculate the amount of land required for Industrial development, developed land and land that is not committed is calculated.

From the approved plan C6/81/11. Map No. 8

Total land allocated to Industries was 52.8 hectares, of these 43.5 hectares were either developed or committed, leaving 9.3 hectares as planned but not committed.





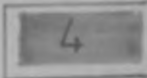



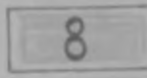
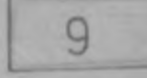
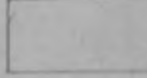
From field survey the following Industries required land for future expansion. Table A.7

<u>Industry</u>	<u>Area (Ha) for Expansion.</u>
Mt. Kenya bottlers	0.88
Aberdare timber construction	1.6
Mbau sawhills	0.88
M.K. Casements	0.77
Fumecoworks	0.5
Total	4.63 hectares.

If the above Industries are provided with additional land that they require for future expansion then total uncommitted land would be reduced to  $9.3-4.63 = 4.67$  hectares.



# LEGEND

-  RES
-  IND
-  2 EDU
-  REC  
PRE
-  4 PUB
-  5 COM
-  6 PUB
-  7 TRA
-  8 DE
-  9 AGF
-  TOV



SCALE : 1 35000

During the period 1979-2000 the Industrial mix is expected to change. The Industries that are likely to come up in Nyeri township includes, a chipboard factory, this industry will make use of sawn timber from saw mills. A charcoal Brickets factory, this will use sawdust from the sawmills. The sawdust is currently being thrown unto waste. As there are plans to increase the production of wheat at Kieni West Division, a wheat processing plant is likely to come up. The district has potential for pigs rearing and there is a possibility of establishing a bacon factory. A matches factory will make use of raw materials from Mt. Kenya and Aberdare forests.

Land requirements for the above Industries is based on land allocated elsewhere for similar industries mainly Eldoret Thika, Nakuru and Nairobi. This land is adopted since it is meeting the requirements of the Industries including staff houses.

Land requirements for the above proposed Industries is as follows:- Table 4.8:

Industry	(Area hectares)
Chipboard factory	2.4
Wheat processing factory	8.1
Brickets factory	0.184
A Matches factory	4.094
Small scale Industries	4.613
<b>Total</b>	<b>32.39</b>

Hence additional land required for future Industrial Establishments is 32.4 less 4.67 land planned but not committed. = 27.73, Total land required for Industrial development by the year 2000 is  $27.73 + 52.8 = 80.53$  hectares.

#### 4.3.3: Land requirements for Residential purposes

##### Existing situation

Total land that has been set aside for residential purposes covers 238 hectares of this land 10.7 hectares is planned but not committed, the rest of the land 227.3 hectares is either developed or committed for residential purposes, these includes site and service scheme, medium density residential low density, and high density residential areas.

Table 4.9: land set aside for residential purpose.

<u>USE</u>	<u>hectares</u>
Site and service scheme	8.3
Medium density residential	65.4
Low density residential	106.8
Institutional Houses	8.2
Committed but not developed	38.6
	227.3
Planned but not committed	10.7
	<u>238.00 hectares.</u>

To calculate the amount of land required for residential purposes by the year 2000. Projected population of 71,121 is used;

From field survey the average household size was 6. This implies that by the year 2000 Nyeri will have  $\frac{71121}{6} = 11854$  house-holds.

In 1979 73% of the people employed were in the low income group 24% were in the middle income group while 3% were in the High income group using income distribution as a guide to the amount of land required for residential purposes, then 73% of total residential land will be committed to low cost houses 24% to medium cost and 3% to high cost houses.

	High cost	Medium cost	low cost.
Households	356	2845	8653

The current trend is to have densities of 40, 130 and 300 for high medium and low cost houses. Taking household size of 6 persons, then 7, 22 and 50 units per hectare for high medium and low cost houses will have to be constructed.

To calculate the land required for each category of houses we divide the total number of houses in each category of cost by the number of units that can be constructed per hectare.

Table 4.10 Total land required for resident purposes.

House type		Land required in (Ha)
High cost	356/7	50.8
Medium cost	2847/22	129.4
Low cost	8653/50	173.1
Total		353.3



Additional land required for residential purposes is 353.3 -  
 238  
 -----  
 115.3

115.3 hectares.

4. Land requirements for education purposes.

Land requirements for education is based on the following standards

	Population	Area (Ha)
Nursery school	3000	0.2
Primary school	5000	3
Secondary school	12000	5

To project the amount of land required by the year 2000A.D.

the following population figures are used.

Rate of growth	1979	1989	1999
3.5%	35743	50419	71121

Table 4.11: Land requirements for primary Nursery and Secondary school:

	Year		
	1979	1989	1999
Primary School	21.4	30.2	42.7
Nursery	2.38	3.36	4.74
Secondary	14.9	21.00	29.6
Total	38.68	24.36	77.04

Total land that has been set aside for education purposes is

76.45 hectares by the year 1999 only .59 hectares of additional land will be required for Education purposes.

4.4.4: Commercial land requirements.

Average percentage of commercial areas in Kenya main towns Nairobi Mombasa and Nakuru is approximately 4% of the total area in Nyeri Municipality the percentage of Commercial areas including petrol stations and small enterprises is 5.7% of the total land.

Below is a table showing the distribution of commercial land in Nyeri Municipality.

Table 4.12

Purposes	Area (Ha)
Proposed business cum-residential	10.9
Existing E.A.P. & L. Company offices	0.5
Existing business cum-residential	10.8
Covered and open air market	0.4
Proposed commercial areas	5.1
Total	30.9

Source: Field survey and Advisory plan 1975.

To calculate the amount of land required for commercial purpose by the year 2000 4% of the total land within the Municipality

$$\text{is taken } \frac{4 \times 913.4}{100} = 36.356$$

land required for commercial purpose is 36.356 hectares.

#### 4.4.5 RECREATION AND OPEN SPACE.

Due to topographical conditions Nyeri has plenty of land zoned for recreational purposes this land is so much so that it accounts for 44.5% of the total urbanised land. A large section of this land cannot be used for urban development or recreation purposes because it is either too steep for any development to take place or too far removed from the residential areas. Other areas are privately owned small holdings hence not available for public use.

The amount of land that has been set aside for recreation purposes covers 426.4 hectares of this land 28.1 hectares have been developed. The limiting factors to development of these recreational land includes topography, distance from residential areas and ownership of the land. There is need therefore to plan land for recreational purposes close to residential areas. Nairobi standards have been adopted in calculating land requirements for recreation purposes in various residential.

For every Hectare of High density residential areas 0.32 hectares is required for recreation 0.29 for the medium density and 0.16 for the low density residential areas. Total land is then calculated as follows-

Table 4.: 13 ~~to~~ Recreational Land Requirements.

Type of Houses	RECREATIONAL LAND (HECT.)	
High cost	50.8 x0.16	8.13
Medium cost	129.4 x0.29	37.5
Low cost	173.1 x0.34	58.8
	total	104.43

This implies that Nyeri Municipality has excess land for recreation and open space by  $426.4 - 104.43 = 321.97$

#### 4.4.6

#### Land required for public purpose.

Public purpose covers a wide range of uses source of which are centralised others needs to be integrated with residential areas.

Existing situation.

Nyeri Municipality has 143.3 hectares of land for public purposes of these 128.5 hectares have been left for future development this land is considered to be enough since other rural towns are growing fast reducing the importance of Nyeri as an administrative centre these towns includes Karatina which has a population of over 7,000 and Othaya with a population of over 2000 people.

To calculate the amount of land required for future public purpose current trend is observed on the basis of population growth and then used.

4.4.7 Land requirements for transportation purposes.Land required for transportation.

purposes accounts for 17% of the total land

$$\frac{17}{100} \times 949.94$$

$$= 169.49$$

4.4.9 Total land required is as follows:

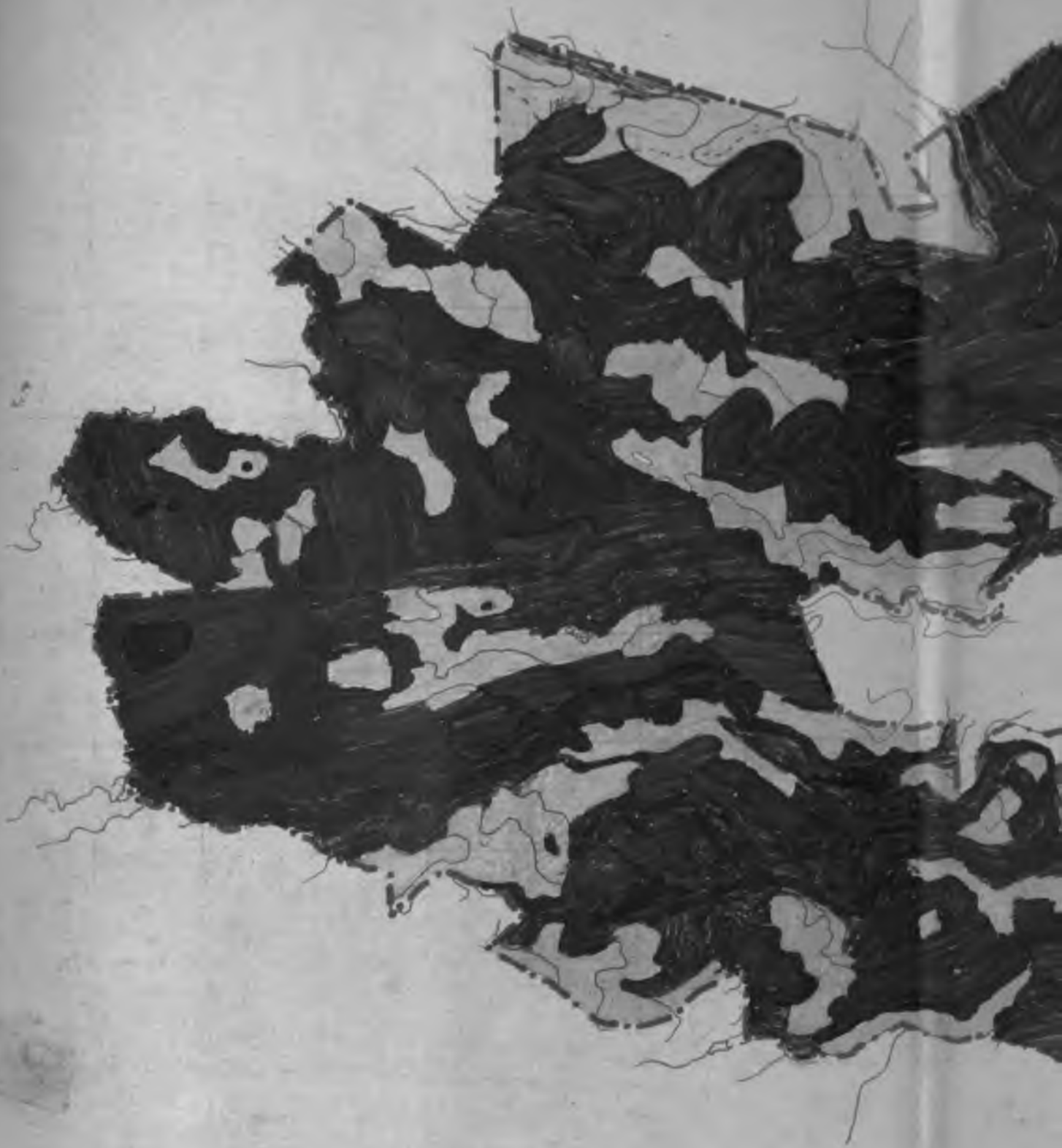
Table 4.14

Use	land required by year 2000 AD.
Residential	353.3
Educational	77.04
Industrial	80.53
Commercial	36.536
Recreational	104.43
Public purpose	256.
Public utilities	42.1
Transportation	161.49
Total	1111.42

4.5 Slope Analysis.

Table 4.15 Slope distribution.		Area in hectares.
Slope		
Below	5%	950
	5-10%	3200
Over	10%	3050

See Map No. 9



NYERI MUNICIPALITY : TOPOGRAPHY



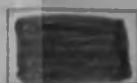
# LEGEND



GREATER THAN 10% SLOPE



5 - 10% SLOPE



LESS THAN 5% SLOPE



SCALE : 1 : 50,000



DEPARTMENT OF URBAN AND REGION  
PLANNING  
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MAP N° 9

According to the analysis in the above table 4150 hectares of land in Nyeri Municipality is below 10% slope while the rest 3050 hectares is above 10% slope.

This implies that 42.4% of the total land in Nyeri Municipality is too steep hence too expensive to develop this leaves 57.6% of the total land as the only land that can be developed with minimum cost. This land can be used for low cost, developments because land rises gently and capital outlay in site preparation is low provision of services and infrastructural network is not expensive on this land.

This land is given priority because of the many advantages it offers however the steeper area can be reserved for future high cost development. ~~These~~ high development costs are offset by charging high rates for services provided.

The amount of land required in Nyeri Municipality by the year 2000 is 1111.43 hectares considering the areas with less than 10% slope, Nyeri has excess land  $4150 - 1111.43 = 3038.57$  hectares.

The additional land that would have been required for urban expansion is  $1111.43 - 7000 = 411.43$  hectares by the year 2000.



Taking land developed by 1979 and population in 1979, land required per 1000 population is worked out  $\frac{128.8 \times 1000}{35473} = 3.6$  hect.

This implies that by the year 2000 the amount of land required for public purpose will be  $3.6 \times 71.121$   
 $= 25.6$  hectares.

CONCLUSIONS AND RECOMMENDATIONS5.0. MAJOR CONCLUSIONS.

Arising from the analysis of data, review of background information of the study area <sup>and</sup> related literature, Many conclusions regarding the establishment of a criteria for urban boundary extension have emerged.

The study has shown that, though the commission of Inquiry into boundary extension has the final say regarding boundary extension it does not go into details of land use. The decision as to how much land is required for what use is left to the Urban council. A lot of time is taken to make this decision due to shortage of qualified planners. The commission of inquiry assumes that boundary extension leads to elevation of a township to higher status, the town then evolves a significant recognition that would protect an orderly development. The town is also accorded higher authority over fiscal matters hence it is able to generate more revenue to enable it to carry out its development activities and become self sustaining, hence the town would grow like Nairobi.

The commission does not go into details as to what problems are facing the council and why there are such problems.

Total urbanised area in Nyeri accounts for 917 hectares this accounts for ~~12%~~ of the total Municipality, the other areas remains very much rural in character despite the fact that these areas are inside the Municipality development in these areas

is hadly controlled. The question of landownership makes it difficult for the Urban council to enforce the rules and regulations which they have laid down.

Machinery to collect revenue in the newly extended areas is lacking, hence the council does not collect revenue from those areas.

As far as provision of services is concerned, the council is a long way off. People mainly in the newly extended areas continue to use untreated water directly from streams, rivers and wells, the sewerage project has never been completed and people continue to use latrines in Majengo areas Kiawara, and in the Newly extended areas.

Only a portion of the population is served by sewage system, open drains are a common sight even at the town centre.

Housing continues to be a problem as is manifested in the slum areas of Majengo Kiawara and Shauri yako. Most of the access roads are dry weather roads which are muddy and impassable during the wet season.

The problem of uncontrolled development indicates that there is shortage of manpower to monitor and control development activities. Areas like Kiawara and Shauri Yako were zoned for light Industries, these areas have now been turned into slums.

The commission assumes that boundary extension creates more land for urban use. This is only true if problems associated with boundary expansion are solved. The main problems includes land ownership, topography and provision of basic services which could act as catalyst to developers.

The urban council is therefore left with the work of forming a machinery to collect Revenue, compensate individual land owners so as to release land for the intended developments, employ additional manpower resources so as to cope with the development work. In the newly created Municipality, and to provide services to the people within the Municipality.

The council takes time to carry out the above responsibilities mainly due to lack of funds and staff. Boundary extension should therefore be based on what the council is able to handle at a given time.

#### 5.1: Recommendations.

1. The commission of enquiry should go into details of land use for both in the past and future so as to know the amount of land that the town requires for future development.
2. Measures should be taken to see that problems that result from boundary extension do not take place in future.

3. Major problems facing the town should be alleviated before any extension is done. members of the public have expressed the same feelings.

See extract below from daily Nation letters to the Editor.

### Nyeri 'in debt to EAP&L'

LOCAL authorities, Government departments and parastatals in the Mount Kenya region owe East African Power and Lighting over Sh. 2.35 million.

This was said on Tuesday by EAP and L area manager Mr. Samuel Muoria when he paid a courtesy call on Nyeri Mayor Waitiki Ndegwa, to introduce ten engineers who man the area.

Mr. Muoria told Mayor Waitiki that Nyeri Municipal Council in particular owed the company 19.195/- and that he requested that the money be paid this financial year.

Mr. Muoria said that the company was faced with hardships in implementing projects in the area.—KNA

### Actions are louder ...

THE situation at Karatina town, especially during the rainy season, is extremely disgusting. The streets are very muddy and one has either to wear boots or walk on bare feet.

The mud is knee high. I really wonder what the town councillors are doing. Just enjoying the councillors post and hopefully waiting for the next elections.

Karatina has seen no development for the last decade and there is no hope for any development in the near future.

Councillors, wake up! Stop talking about expanding the town boundaries and do something about the muddy streets and the general arrangement of the town.

Less talking, more action.

Gethi W. Ndegwa (Miss),  
Karatina.

4. Since boundary extension does not necessarily mean more land for future expansion, a critical Evaluation of the advantages and disadvantages of boundary extension should be done, legal aspect of land ownership should be understood, land acquisition and compensation should be immediate so as to control development that would be anticipated by Boundary extension.

5. The question of manpower is very important, the council should make sure it has enough funds to employ more staff to carry out development activities. This important factor if not taken care of results to uncontrolled developments taking place in the Newly Extended areas.

Land Acquisition for public use becomes a very expensive exercise and it takes time to effect any developments in areas where uncontrolled development has taken place.

6. The commission should not assume that boundary extension makes the council well off due to collection of Revenue. The commission should see to it that a machinery to collect revenue is already established, funds are available to compensate owners whose land will be required for public use, there is enough staff to handle development matters.

7. Expenditure pattern of the expected funds should be drawn, This way the commission will be able to know what the Urban Council is able to handle at a given time.

8. When a particular township boundary is being considered for Expansion, it should not be considered in isolation We have

Nyeri selected together with Nakuru, Kisumu, Thika, Eldoret, Kakamega and Embu as growth centres with Nakuru, Kisumu, Thika and Eldoret to be promoted as Industrial centres. In 1974-78<sup>2</sup> Kitale and Meru were added to the list of growth centres as alternative destination of migrants.

Growth centres are favourable due to their compatability of dispersed settlement pattern with Kenya's agricultural and resource based Industries, Emphasis on Export promotion Emphasising agriculture and resource based industries favours location outside Nairobi.

Although 1979-83 development plan emphasis on controlling development of Nairobi small scale industries in rural areas will have little impact on the goal of decentralization of Economic Activities outside Nairobi. This is due to increase of inflation and increased expenditure on defence leaving little to spend on other developments.

The fact that Nyeri is only 220 Km. from Nairobi and there is a tarmac road linking the two areas may affect development in Nyeri this limiting its growth due to flow of resources from Nyeri to Nairobi.

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2) 1974-78 " " " Page 144.

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APPENDIX 1Questionnaires used in the Interviews:

UNIVERSITY OF NAIROBI

1981/82

DEPARTMENT OF URBAN

M.A. PLANNING

AND REGIONAL PLANNING

2<sup>ND</sup> YEARQuestionnaires used for Establishing a Criteria for Urban boundary  
Extension of Kenya Towns.A Case Study of Nyeri Town.Household Questionnaires for the old Township.

1. Age of the household head \_\_\_\_\_
2. Number of persons in the Household. \_\_\_\_\_
3. How many are between the Age of

A: 0-4	---	H: 35-39	--
B: 5-9	---	I: 40-44	--
C: 10-14	---	J: 45-49	--
D: 15-19	---	K: 50-54	--
E: 20-24	---	L: 55-59	--
F: 25-29	---	M: 60 <sup>+</sup>	--
G: 30-34	---		

4. Sector of Employment of Household head.

A: Agriculture  
 B: Commerce  
 C: Industry  
 D: Formal  
 E: Other

5.

## Monthly Income

- A: From Employment
- B: From business
- C: From other sources specify.

6.

## Type of House

- A: Bungalow
- B: Flat
- C: Maissonnet
- D: Cum-Residential
- E: Semi-detached.
- F: Other (Specify)

7.

## Roofing Material

- A: Tiles
- B: Bricks
- C: Iron Sheets
- D: Timber
- E: i) Thatch  
ii) Cartons  
iii) Polythene
- F: Other specify.

8.

## Wall Material:

- A: Collugated Iron sheets
- B: Mud
- C: Wood
- D: Stone
- E: Timber
- F: Other (Specify).

9.

## Floor Material:

- A: Tiles
- B: Mud
- C) Stone
- D: Wood
- E: Other Specify

10.

Number of Rooms in each Unit. -----

11.

Bathroom/Kitchen ownership.

- A: Private
- B: Shared
- C: None

12.

Rent per month ----- Ksh.

13.

Ownership of the house.

- A: Rented
- B: Owner self
- C: Council
- D: Institutional

14.

Mode of transport

- A: Foot
- B: Bicycle
- C: Private Car
- D: Company vehicle
- E: Public means Bus/Matatu
- F: Others specify.

15.

## Travel Distance

	less than 1 km	1-2 km	2-3 km	3-4 km	4+ km
Purpose					
Work					
Hospital					
Recreation					
School					
Shopping/Business					
Market					
Others					

16.

## Refuse Disposal

- A: Uncontrolled Dumping
- B: Dustbins
- C: Compost Pit
- D: Inceneration
- E: Others Specify.

17:

## Sewage system

- A: Sewers
- B: Conservancy tanks
- C: Pit Latrines
- D: Buckets
- E: Uncontrolled.

18.

## Water Supply system.

- A: Piped
- B: River
- C: Borehole
- D: Rainwater
- E: Stream

## 19. Cooking Media

- A: Gas stove
- B: Electricity Stove
- C: Charcoal Brazier
- D: Open Hearth
- E: Paraffin Stove
- F: A combination of A,B,C,D,E, (Specify)
- G: Other Specify

## 20. Fuel used

- A. Gas
- B: Electricity
- C: Charcoal
- D: Paraffin
- E: Firewood
- F: A combination of A,B,C,D,E, (Specify)
- G: Other

## 21. Amount of money spent on fuel per month.

- A: Paraffin - Ksh.
- B: Charcoal - Ksh
- C: Gas - Ksh
- D: Electricity - Ksh
- E: Others - Ksh

Household Questionnaires for the Newly Extended Areas.

1. Number of persons in the Household. -----

2. Age Group members:

A: 0-4	G: 30-34
B: 5-9	H: 35-39
C: 10-14	I: 40-44
D: 15-19	J: 45-49
E: 20-24	K: 50-54
F: 25-29	L: 55-59
	M: 60 <sup>+</sup>

3. Sector of Employment

Agriculture

Industry

Commerce

Informal (specify)

Formal.

4. Monthly Income from

A: Employment

B: Business

C: Other specify.



5. Distance travelled	less than 1 km	1-2	2-3	3-4	4+
Purpose					
Work					
Business/Shopping					
Market					
Hospital					
School					
Recreation					
Other specify					

6. Travel mode

- A: public means matatu/buses.
- B: Private car
- C: Foot
- D: Bicycles
- E: Company
- F: Other specify.

7. Size of the farm -----

9. Activities in the farm

- A: Agriculture
- B: Commerce
- C: Residential
- D: A combination of A,B,C. Specify.
- E: Others Specify

10. Do you pay rates to the council.

Yes/No.

11. The Intended forms of developments

- A: Agriculture
- B: Rental Houses
- C: Farm subdivision
- D: Others (Specify)

12: Housing Type

- A: Bungalow
- B: Flat
- C: Maisonnet
- D: Semi detached
- E: A combination of A,B,C,D (Specify)

13. Roofing material

- A: Iron sheets
- B: Asbestos
- C: i) Thatch
- ii) Cartons
- iii) polythenes
- D: Bricks
- E: Other specify.

14. Wall material:

- A: Mud
- B; Sticks
- C: logs
- D: Stone
- E: Timber
- F: Iron sheets
- G; Other specify

15. Floor Material

- A: Earth
- B: Timber
- C: Stone
- D: Tiles
- E: Others Specify

16. Ownership of the house.

- A: Ownerself
- B: Rented
- C; Council
- D: Institutional

services:

17. Sewage system

- A: Sewers
- B: Pit latrines
- C: bucket
- D: Conservancy tanks
- E: Other

18. Any electricity connection in the house

Yes/No

19. Nature of Access roads

- A: tarmac
- B: Marrum
- C: dry weather roads.

## 20. Refuse collection

- A: Council
- B: Compost pit
- C: burning
- D: other specify

## 21. Water supply system

- A: piped
- B: stream
- C: River
- D: Borehole
- E: Rain

## 22. Cooking Media

- A: Gas stove
- B: Open hearth
- C: paraffin stove
- D: Charcoal brazier
- E: A combination of A,B,C,D, (specify)
- F: other specify

## 23. Fuel used

- A: Gas
- B: firewood
- C: paraffin
- D: charcoal
- E: A combination of A,B,C,D (specify)
- F: other specify

## 24. Amount of money spent on fuel

Paraffin	--	Ksh.	Electricity	- Ksh.
Charcoal	--	Ksh.	Firewood	- Ksh
Gas	--	Kshs.	Others	- Ksh.
		Total		----- kshs.

INDUSTRY QUESTIONNAIRES.

1. Name of the Industry.
2. Sources of raw materials
  - A: Local
  - B: Imported
  - C) Imported from other Regions.
3. Markets for the finished products
  - A: Locally consumed
  - B: Exported to overseas Countries
  - C: Exported to other Regions
  - D: Sold to the informal sector.
4. Size of the Industry in (Hect) \_\_\_\_\_
5. Build up area Hectares
6. Additional land required for future expansion (ha)
7. Cost of labour per annum
8. Maximum capacity of labour it can employ.