PLANNING FOR EDUCATION IN KISUMU MUNICIPALITY

BY

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the requirement for the degree of Master of Arts in
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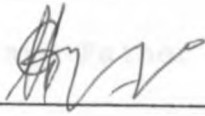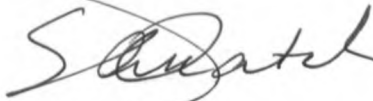Design and Development, University of Nairobi.

JUNE, 1987.

DECLARATION

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

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(Candidate)

This Thesis has been submitted for examination with the approval of the University Supervisor.

11.6.87

_____
(Supervisor)
S.O. AKATCH

DEDICATION

To My Mother and Father for giving me
the impetus

To Jayne for her support.

A C K N O W L E G E M E N T

I wish to extend thanks to my Supervisor Samuel Ochieng Akatch in appreciation of his guidance and constructive critism, Dr. W.O. Oyugi for his interest in my work.

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ABSTRACT

Planning for education anywhere is always a long term process. This is mainly because it is necessary to preempt a situation where the demand for education facilities is not met adequately. It is also necessary to look at the different levels of the education hierachy and how they relate to each other and therefore how planning at one level affects the other levels. There is also a need to relate the planning of these facilities to education policy to ensure that the policy is implementable in planning terms. The growth of an urban area, its land use distribution at present and in future very much affects the location and distribution of education facilities. Forward planning for these facilities must therefore take cognisance of such parameters.

Other factors which directly affect the site location of education facilities such as accessibility and future land for expansion are also crucial to education planning.

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CHAPTER ONE

1.0   INTRODUCTION

Frankena (1965) writes that Aristotle considered education to be the transmission and acquisition of virtue or excellence. This is moral, intellectual or physical. Kant, he writes, called it the development of disposition or excellence. It makes man prudent and gives him wisdom or civilises him and moralises him and gives him guidance. John Dewey on the other hand contented that education is the process of forming fundamental disposition, intellectual and- emotional towards nature and fellow men. He said that the goal of education was to make action intelligent.

It is on basis of these underlying goals of education that the author took up the study. Education be it formal or informal is the ground of the society's development.

In any planning process, the planner attempts to be as comprehensive as possible so as to achieve harmony in the plan proposals. One of the setbacks in comprehensive planning is that it is difficult to identify all the factors that are likely to have impacts on the plan. In this study the author looked at residential land use, working places and population parametres.

It is contended that action be taken on several
fronts simultaneously if planning is to be effective.
The author has tried to integrate where possible the
above identified parametres because there is a need
for unified planning at all levels.

1.1 Statement of the Problem:

The rapid urbanisation process in Kenya has
put great constraints on existing land uses. In
Kisumu the problem has reached large proportions.

One major problem is the location of
education facilities in the town. Originally schools
were located in two bands as shown in Map No.1. Other
schools sprang up as the need arose in new residential
areas such as Shauri Moyo. But the two zones mentioned
have the majority of schools in the main urban area.

However, the town has grown very rapidly in
the last few years and is still expected to do so at
a high growth rate thus resulting in pressure on the
existing education facilities which are no longer
able to accommodate further expansion.

The development of the town along the Kisumu-
Kakamega and Kisumu-Kibos roads shown in Map 11 has

LAKE VICTORIA

Jomo Kenyatta Highway

SCHOOL LOCATION IN OLD MUNICIPAL BOUNDARY

PLANNING FOR EDCATION   IN

KISUMU MUNICIPALITY

△
N

SCALE

SOURCE: MUNICIPAL EDUCATION DEPT.

MAP 1   M.A. THESIS
                D.U.R.P

Plate 1: Residential Blocks surrounding the school in the Background.
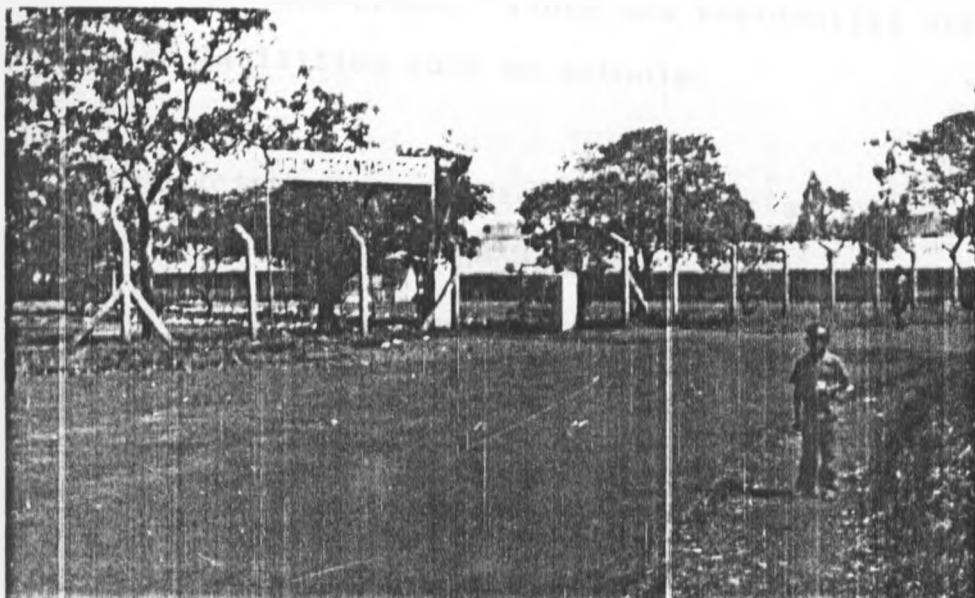
Plate 2: Private Schools: A response to the need for more secondary schools.

rendered the location of these institutions
inappropriate to meet present and future needs.

The boundary extension in 1976, of the
Municipality was in response to the expected growth
of the town. Manyatta and Nyalenda sub-locations
were originally outside the Municipal boundary yet
they had over 50% of the total urban population.
Most of the people working in the town live in the
slum settlements in these two sub-locations. The
extended boundary thus included these two sub-locations
among other rural ones. It has now been made possible
to develop new residential areas for the urban residents
and improve the slum areas. These new residential areas
will require facilities such as schools.

The Municipal Council has now a wider area to
develop. It has thus been necessary to acquire land
for expected future development. This in effect has
raised land values and in effect has raised the cost
of developing new sites for schools. The transportation
network for Kisumu was designed for relatively smaller
town. However as the town has expanded so has the volume
of traffic. New residential areas have been put in
Kanyakwar and Mogosi areas. These people have to travel
to the town centre and they use the Jomo Kenyatta Highway.
The road was not designed for such large traffic. The new

structure plan for the Municipality therefore proposes a by-pass to reduce this traffic. But it is still envisaged that intra-urban traffic on this road will continue to rise as the town develops towards Kibos. Students have to cross this major road going to and from school, The road has however become increasingly dangerous for the students. Between 1985 and 1986 there was an increase of fatal accidents involving pedestrians from 11 to 22 people an increase of 50% along this road, This calls for a need to look at the safety factor for students crossing the road, especially the primary school children.

The existing schools were built on plots which were sufficient for the student populations per school. The average size per primary school was .6 acres. Many old schools met this requirement. However with rapid urban development many schools are being surrounded by land uses such as shops and residential houses (Plates 1&2). In fact schools such as Kisumu Union Primary school cannot provide sufficient playing ground for the pupils. With the building of new classrooms for the new education system schools such as Kibuye Mixed primary have been forced to use up the playing ground for such development The existing classrooms in the main urban areas are generally crowded while the ones in the rural parts of the municipality are under-utilised. This is due

to the disparity in densities between these built up
areas and the rural municipality.

The 8.4.4. education system necessitates provision
of extra classrooms, workshops, laboratories and
agricultural demonstration plots for both primary
and secondary. The existing schools have to accommodate
all these functions on the existing plots. But it is
prudent that any new school caters for such demands.

The structure plan for Kisumu (Kenya, 1986)
approved in 1986 sets the growth directions for Kisumu
in a linear fashion running from the Kibos area towards
Kisian as indicated in Map 11 . This necessitates
detailing of the expected location of schools and
relocation of existing schools depending on the planned
land uses. It also implies that an educational plan
take into account the areas which are most likely going
to be developed in the near future.

The study thus sets out to seek solutions to
the above problem.

1.2   Justification of the Study

Urbanisation in Kenya has been rapid and has
caused its own peculiar problems. In the field of
education we have seen that it is crucial that
many factors be considered in planning for education

institution growth and distribution.

High demand for land within urban areas necessitates provision of adequate land for future development. Many schools in Kisumu have exceeded their normal capacity of 45 students per class and there is little space for expanding these schools.

No planning study has been undertaken in Kisumu in relation to education and the implication the growth of the town has on education institutions in the Municipality.

With the introduction of the 8.4.4. education system, the problem of education planning in Kisumu and in the country as a whole has taken new direction requiring a new look at the planning issues this new education policy arises.

It is also essential to ensure that in implementation of any land use plan in the town. it be ensured that education plans are harmoniously implemented with any such plans. This requires a critical study of the education planning as it relates to Kisumu to ensure that the population site selections and standards are complementary.

1.3   Objectives

The study of the Municipality's education institutions has been undertaken due to the problems identified. The research set out objectives that would help anticipate and alleviate these problems. These objectives are:

1.   To appraise the population size, structure and distribution and growth.

2.   Determine the existing education institutions' land availability and demand

3.   Establish the working place and residential land use and projected direction of growth

4.   Evaluate the education standards as it relates to location of schools and future urban development,

5.   Relate school distribution and residential land use development.

1.4   Assumptions

The study made assumption that:

1.   Growth of the town will continue along the Kisumu-Maseno and Kisumu-Kakamega roads corridors.

2.   Education policy will not change for the next 20 years,

3. Population that survives will have similar age
    group ratios as the immigrants since most inmigrants
    come from Nyanza which has the same average survival
    rate as the study area.

1.5 Scope of the Study

The study area was the Municipality of Kisumu,
though more emphasis was given to the built up area
within the old Municipal boundary as shown on map 2.

The study included all levels of education ,
including nursery, primary and secondary schools.
Assessment was undertaken for the population size,
structure, distribution and growth upto 2000 A.D.
A sample survey was done to determine existing population
structure especially in the main urban area. This survey
included occupancy ratios and population at different
levels of education institutions. The relationship of
schools to residential areas was analised to determine
the distance ratio.

Land use survey was undertaken to determine the
possible direction of growth of the town.

To ensure that the transportation system keeps
up with the other land uses, development, especially
education, potential bus routes were to be identified

TO MIWANI

TO MASENO

	OLD MUNICIPAL BOUNDARY
	SLUM AREAS
	ROAD
	RAILWAY LINE
	RIVER
	HOUSEHOLD SURVEY AREA

KANYAKWAR MIGOSI

MANYATTA

MUNICIPAL HOUSING
ESTATES

MILIMANI

NYALENDA

LAKE   VICTORIA

PANDPIERI

TO NAIROBI

PLANNING FOR EDUCATION IN
KISUMU MUNICIPALITY

SCALE

KILOMETRES
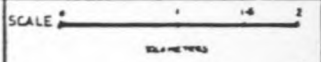
ONYANGO G.M

FIELD STUDY AREA

MAP 2

M.A. THESIS:
D.U.R.P

N

to incorporate them with education institutions
development.

A traffic survey on Kenyatta Highway was
conducted to determine the safety factor for the
many schools adjacent to the road.

Education standards were reviewed in the light
of the 8.4.4. education system to determine their
validity.

The study was thus geared towards coming up with
planning proposals that would enhance the development
of education institution in the Municipality of Kisumu.

1.6   Methodology:-

1.   Sources of Information :

Statistical data which was mainly of a secondary
nature was obtained from the University of Nairobi
Library and Government publications in the Ministry and
secondly statistical and qualitative data was obtained
from the public officers in the field , at the
Ministries and Municipal office s.

The household survey was conducted within the
old Municipal boundary. The samples were undertaken
in areas of different densities and incomes as follows:

Table 1

Residential Area	Persons/ Hectare	% of population	% of sample
High Density	1,200	60	64.5
Medium Density	130	30	31.2
Low Density	30	10	4.3

Sample Distribution.

The emphasis on the old Municipal boundary and parts of Nyalenda, Manyatta and Pandpieri was deliberate since these areas form the main built up area of the Municipality.

The household questionnaires which were designed as simply as possible were mainly aimed at getting information on centrality of schools, occupancy ratios, family size and structure, inmigration, population in schools, outmigration of students.

Physical land use surveys were undertaken to determine the potential growth direction of residential, commercial and industrial development.

A traffic survey was conducted on Jomo Kenyatta highway to determine the volume of traffic that would be transferred to the new by-pass in Manyatta, and to find the safety measures that should be

undertaken along the road for the students' safety.

Informal interviews were conducted with head-
teachers, students and other urban residents. This
generated information which would have been difficult
to obtain from a more formal approach and helped the
researcher get a more or less comprehensive picture
of the problems of education institutions in the town.

2. Data Analysis

Firstly the researcher analysed data on population.
From the sample population structure it was possible
to come up with an estimation of the general population
structure. This was used to project the cohort survival
for the next 15 years assuming that the sample was
representative of the population.

The Cohort survival method was chosen because
it breaks the population into small groups such as age
and sex. It thus allows for planned change and for
other local changes not systematically included in
the calculation such as migration rates. Disaggregation
of population into sex and age groups allows for
disaggregated forecasts. This is important for
education planning because school facilities are
designed to accommodate particular age groups.

Though this method is not fool proof it gives
us a better picture of the future population than the
aggregate methods projection.

Survival rates used were based on the rates
established by the Population Research and Studies
Institute.

Determination of future space requirements for
different land uses is important for a study of this
nature. However the researcher limited such projections
to residential and education land use requirements.
However possible directions of growth of industrial
and commercialland uses are indicated.

The standards given in the Town Planning Handbook
were analised to allow for the incorporation of the
new demands of the 8.4.4. education system.

Christaller's central place theory, which states
that if there is an isotrophic surface with equal
movement ease in any direction, a uniform distribution
of population and purchasing power, and uniform terrain
and resource endowment, then settlements will spring
up at evenly spaced points (Ablerr, et al., 1977, p.370)
gives a good framework for establishing location of
education institution. Thus based on the underlying

principles of threshold and range found in this theory, schools were to be located in areas which have the most centrality so as to achieve an even distribution of these facilities.

The enrollment ratio was used to determine the adequacy of the existing standards especially in the primary schools.

1.7   Study Limitation

From the 1979 Census records it was not possible to get the population of the Municipality by age groups. Estimates were therefore based on the sample survey. These estimates are not very accurate but they give a guidline in the analysis.

Data on the population size, structure and spatial distribution of the pupils in the Nursery schools was not available so it was not possible to determine the attendance ratio.

1.8   Literature Review and Conceptual Framework

Kenya like many of the developing countries placed considerable importance in the role of education in promoting economic and social development after the achievement of independence. The education systems

are expected to fulfil two basic objectives. These
include the technical objective of furnishing future
manpower with requisite skills and knowledge and
the social objective of the inculcation of those actual
values which contribute to the enrichment of the people's
maintenance of a cohesive productivity. (Sifuna, 1986).

To achieve this   the planner has to ensure
that the facilities for education are provided where
and when needed. It is necessary to ensure that
planning for education be undertaken to provide an
environment conducive to learning.

Expansion in education at all levels has been
tremendous. This expansion is reflected especially
in the increase in the number of students enrolled
in schools. By 1982 Standard I enrollment of school
going age children all over Kenya was estimated at
83.9%. (Sifuna, 1986). In urban areas this figure
is higher.

Secondary school enrollment rose from 30,000
pupils in 1963 to 115,000 1969 to 500,000 by 1983.
By 1990 this figure is expected to reach a million.
It is due to this rapid increase in education demand
that it is necessary to plan for these facilities.

Planning standards are the yard sticks established for ensuring of a controlled and reasonable development of land use. Education planning standards are designed to:

1.   Create a healthy and quiet environment in educational areas.

2.   Provide adequate land and built up area necessary for classrooms, laboratories, play-grounds and other ancilliary facilities.

3.   Provide easy access to schools and efficient circulation on the school compound and

4.   Establish harmonious relationship between education , residential and recreational areas.

It is thus necessary that in this study attempts be made at ensuring that achievement of the above goals be the guiding framework. However we find that the standards given by the Town Planning Handbook (1971) may not be applicable at all times These standards are summarised below:

Table 2:

	Population served	Area in Acres	
Nursery School	2,500	⅓	100 pupils
Primary School	5,000	6	3 - 4 streams
— Boarding		1	700 boarders
Secondary School day	25,000	17½	3 - 5 streams
Secondary Boarding		45	

Town Planning Department School Standard.

P.S. a) 1 acre for demonstration plots

b) 2½ acres for 30 staff houses in primary school

c) Secondary school land includes site for Agriculture and staff housing.

We find that most of these standards are applicable where there is expansive land which can be acquired cheaply. In urban areas the land constraint forces one to re-evaluate these standards to cope with the urban situation.

With the introduction of the 8.4,4. education system in Kenya these standards have been rendered

invalid because of the increase in the number of
classes in a primary school, and the abolition of
the "A" level class in secondary schools.

Bareither (1968) argues that the translation
of educational programme into physical facility require-
ment involves a constant evaluation and re-evaluation
of the enrollment projections, changes in education
programme, inventory of existing facilities and
development of new facilities dependent upon
institutional requirements.

However Goodman and Freud (1968) argue   that
the physical facilities should not be seen in isolation
and that the planning process is not just a translation
of policy to land use but that the planner must be
involved at policy making level. Kennedy (1979) takes
this argument further and says that the location of
education institutions could be geared so as to enhance
community development

This argument is due to the fact that schools
are best located in a neighbourhood since that is
where its students live; it also provides facilities
for the people in the neighbourhood community. Thus
the emphasis that this study places on residential-
school relationships.

Chapin and Kaiser (1979) point out that the
space needs alone are insufficient in land use planning
for schools. Assessment of other land uses and inventory
would give a better picture and thus lead to a more
comprehensive and integrated plan. Goodman and Freund
(1968) also bolster this argument. They give examples
where one needs to know the commuters to the institution
(e.g. a University) and how this relates to the
immediate neighbourhood. He recognises that education
institutions are an integral part of a larger
environment, and should be planned as such.

Other writers such as Perkins and Corking (1951)
Wright and Gardner-Medwin (1938) also hold the same
view of planning for education in relation to the
neighbourhood. They give special emphasis to nursery
schools which they say should be a walking distance
of ½ a mile for the children who attend them and
such a school should be located away from traffic
and noise and children should not have to cross a
main road, or secondary traffic roads on their way
to school.

However in urban areas we find that such
optimal situations are not normally available but
it is best to try to ensure that schools are put as
close as possible to the users. This strengthen the

argument for neighbourhood schools.

Chapin and Kaiser (1979) argue that it is
necessary to locate schools in flat land to allow
for future expansion. This is crucial especially
in urban areas where land is scarce thus necessitating
that each school have a land bank within its fence.

We are always planning for people so we have
to know what is desirable for our target population.
In planning for education, the population of school
going age and the catchment population are the two
main population factors we have to consider.

Among the demographic factors which influence
education most is population structure. The increase
in economic activity of the population determines the
number of people who can get education, especially
where the education is not for free.

Wright and Gardner-Medwin (1938) point out
that in determining the future growth of a school
and thus its expansion, the child population rather
than the total population should be used. The total
population is only used to determine the urban growth.

The UNESCO report (1975) breaks down this
student population into disciplines, full-time or

part-time student, under-graduate or postgraduate
etc. when one wants to undertake a detailed study.
The academic and supportive staff must also be considered.

It is on this basis that the author in this
study undertook to use the Cohort survival method
to project the population. This would help in
determining with some degree of accuracy the actual
demand for these institutions in the future.

Education is based on both family and school
life. This is the main reason why schools are planned
as part of the neighbourhood. A neighbourhood school
is made up of families which may combine into a
community and has definite social contacts and a
recognizable physical unity. To achieve a "working"
neighbourhood the plan can provide incentives for
the people to get a feeling of living in one place
distinct from others.

Schools can be used to achieve such a goal.
Goodman and Freund (1968), King, (1976) say that with
school buildings within easy reach parents and teachers
have a chance of contact and the school is accepted
by both children and parents as part of their
neighbourhood.

However only nursery and primary schools can be made as integrated part of a neighbourhood. At secondary and higher education levels, it is less possible to provide such facilities at a neighbourhood level but such schools can be provided when and where possible as part of a comprehensive school. Such a school agues King (1976) would have a bigger role to play as a community centre especially if the school is planned at the heart of a neighbourhood as its focus.

Where possible a secondary school should be included in the comprehensive school. To ensure that the school acts as the focus of the neighbourhood, it should also be developed as a community centre. The school hall could be used as a cinema hall for the community. The classes could be used in the evening for adult literacy classes and the playgrounds should open for the people in the neighbourhood to use for recreation.

In rural areas it has been easy to make the school the focus for the community function since it usually has the only available open space and facilities for games and room for congregation.

Urban schools are often closed after school.
During the weekend the school gates are closed and-
the school looks forbodding.   However to ensure that
not only does the school serve as a community centre
but also as a reacreation ground the above strategies
have to be accepted by both children and parents as
part of their neighbourhood.

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CHAPTER TWO

2.0 HISTORY OF EDUCATION IN KENYA

2.1 Introduction

A policy is a course of action adopted and pursued in attaining goals or achieving objectives (Goodman and Freund, 1968, p.335). Any developer must undertake projects and programmes implementation based on the policy as a guideline to achieve his objectives.

In education, the main objective of the Government is to provide equal education opportunities for all, the enrichment of the heritage and production of skilled manpower to meet the growing and changing demands of the economy.

2.2 Pre-independence Education System

The church on settling down in Africa decided to "educate" the African so that he (the African) could be able to understand the bible well enough to be able to woo his fellow Africans into Christianity.

Government policy on education took a turning in 1911 when the education department was set up by the colonial government. This was primarily to administer three schools for European children.

The education of Africans was left to the Missionaries.
Each mission would set up its own school. This gave
rise to schools such as Alliance, St. Mary's, Yala,
Maseno School among others. The important feature
of these schools is that they could be grouped into two:
Roman Catholic and Protestant.

Government funds were offered to Mission schools
only in so far as they offered industrial education.
These schools thus produced labourers for the settlers.

The second Phelps-Stokes Commission report
on education of 1928 looked at East Africa. It gave
the main thrusts to the mission school system.
Beaver (1966) notes that the commission emphasised
the need for a teacher training institution and
secondly it led to grants-in-aid by colonial
government for schools and training colleges
maintained at government approved standards. But as
mentioned earlier, the grants-in-aid ended up solely
for schools with industrial education.

The Jeanes School at Kabete, also started in
1928 was a scheme for training supervising teachers
for village education. A look at the timetable for
the student, below, will show why it failed as a source
of supply of trained teachers for schools!

Table 3

7.00 to 8.00	School Gardens (Tree Planting grass cutting, making patus etc.)
8.00 to 8.45	Arithmatic
8.45 to 9.15	Drill
9.15 to 9.30	Break
9.30 to 10.15	Reading (4 days/week) or Hygiene and morals (2 days/week).
10.15 to 11.15	Handwork (Baskets, mats, etc.) (3 days/week) or Writting and measuring (3 days/week)

Source: King, 1976 - Time-table Jeane's School.

The wives of the students were taught hygiene, sewing, etc.

From the timetable we see that the training did not give the students confidence and ability in academic subjects to give the intended boost to standards in primary schools. They were more geared to public/community education. Thus the Jeane's school pettered out.

Thus we see that upto independence schools developed as factories for producing literate people with a bit of organisation compliance but they were at a loss to do much more (King, 1976).

Under the colonial system there was the assumption
that different racial groups would remain separate,
if not for all time, at least for a long time to come
(Sifuna, 1986).

2.3   Education System from 1963 upto 1986

The Ominde Commission report (1964) became the
blue print for establishing the education system as
we have come to know it. The Commission did away with
the racial segregation and established a uniform
curriculum for schools. Many of the recommendations
were made part of the Education Act which has since
guided the development of education in Kenya.

The emphasis however was on post-primary
education, namely secondary, commercial, technical and
higher education. The aim was manpower production.
This was for the key post which would be occupied by
Africans in the Africanisation and Kenyanisation of
the Civil service and the economy. But soon these
posts were filled and the educated jobless people
began migrating from places seeking employment.
More often than not they were not willing or able
(as King, 1976 suggests) to do any but "white collar"
jobs. They had been trained to expect these jobs.

Sifuna (1986) notes that efforts were made to
avoid the rapid expansion of the primary education to
meet general popular demand. But this trend was abolished
as the objective of manpower requirement for the civil
service was met. The new trend however resulted with
more and more demand for form one places in secondary
schools. There was also a subsequent increase in
graduates at every educational level and this was
always in excess of the number of places at succeeding
stages.

The result was harambee schools. These were
set up by local people who felt the need to ensure
that their children got secondary education.
Education was (and still is), the key to employment.
As the labour force flooded the market there was a
need for one to go as high up in the education system as
possible.

The employment problem was taken up by Inter-
national Labour Organisation (I L O 1972). The
report emphasised the need for basic education in
the country, proposing a universal free eight to nine
years covering primary and lower secondary education.
There was great concern over the failure of secondary
education to equip those leaving school with the

necessary skills required in the labour market, particularly in the area of technology.

In 1973-79 Presidential decree abolished school fees for standards one to four and this set way for free primary education for all, which was achieved by another Presidential decree in 1979 This was in line with the KANU government's guiding principle of giving priority to education so that all Kenyans could share in nation building and enjoy the "fruits of independence".

There was subsequently a staggering rise in school enrollment which made planners to rethink of programmes and priorities in education planning.

The total enrollment figure for standard one to four increased from 1.8 million in 1973 to 2.8 million in January, 1974. Many students would drop out after standard four.

Nkinyangi (1978) says that in terms of opportunity structure for schooling nothing really changed, many parents who were not well endowed economically, educational access or their children's continuation with school remained a very doubtful preposition.

The introduction of the building fee now however rendered the concept of free primary education obsolete. In most cases it had turned out to be higher than the school fees that was charged prior to the decree (Sifuna, 1986). At the time of the abolition of the school fees no counter measures were announced on how to replace the revenue lost through this decree.

Children who had been absorbed in schools due to the building fund were discouraged and- dropped out. This is mainly because to secure employment one needed not just primary education but post primary training as well.

The National Committee on Educational Objectives chaired by Gachathi (1976) placed a lot of emphasis on providing basic primary education which would help the school levavers be self employed. It was based on the I L O report (1972) recommendations which have been stated earlier.

Before independence Africans had been dissatisfied with technical education as they felt that technical and vocational education was meant to restrict them to an inferior position. Nzomo (1984) notes that this type of education was informally labelled "education for servitude".

The Gachathi Commission (1976) recognized that a time had come when Kenyans once more could place emphasis on technical education with the colonial element. It realised that grammer education alone would not be able to prepare the pupils sufficiently on completing primary education. Thus it proposed a new form of education system which would set a basic education of 9 years in primary. This was designed to train the students in crafts and trades and in the process make them self-reliant. This approach recognised the need for low and medium level skilled manpower.

The Mackay Commission (1981) adopted most of the recommendations of the NCEOP but suggested 8 years basic education and the eradication of the "A" level classes. With a subsequent 4 years University education for undergraduate.

Table 4

Education level	Mode 1 Ominde Commission	Mode 2 NCEOP Proposal	Mode 3 Working Party
Primary	7	9	8
Secondary	4 + 2	4	4
University (Undergraduate)	3	3	4
Total	16	16	16

The "A" level system had been found wanting
since some areas did not have "A" level streams and
therefore the youth in these areas had a low chance
of getting University education.

The Commission also noted that it is cheaper
to maintain an Arts stream than a science stream thus
most "A" level streams have tended to be Arts and
this has resulted in overproduction of Arts students
who cannot get absorbed into the labour market
subsequently.

At "O" level students take both Arts and Science
subjects therefore the distribution between Arts
and Science subjects is more or less equal.

The Mackay Commission emphasised pre-vocational
training or basic education at primary and secondary
level. It hopes that students will be self reliant
on leaving school.

Although the system is still in a transition
stage, it is likely to face problems of costs
(Sifuna, 1986). Schools have to construct laboratories
and workshops and- extra classes coupled with the
need for land for Agricultural courses.

The assumption that pre-vocational skills taught at primary and secondary levels would improve the employability of school leavers has never been tested. It is highly unlikely that the amount of skills in woodwork, masonry or typing that can be acquired at primary and secondary level, will improve the chances of a school leaver to find employment or to make a living on his or her own using those skills. The training is often more or less superficial but the programme need a greater evaluation to come up with a clearer view.

Demand for educational opportunities will continue as long as education is viewed as the most likely way of maintaining and possibly improving peoples position in society.

Sifuna (1986) points out that studies in a number of developing countries have found higher rates of return investment in primary than in higher education.

With the likelihood of universal primary education planners have to look at the planning implications of such an eventuality, which might not be too far in the future.

The development plans have been changing in content since 1964 in relation to the findings of the Commissions. However the Sessional Paper No.1 of 1986 shows a great shift from this trend with the emphasis on cost sharing in provision of facilities. This will bring parents at the forefront in project implementation and the planner must also consider this in planning for education.

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3.0   KISUMU : LOCAL AND REGIONAL CONTEXT

3.1   Introduction

Located at the North Eastern tip of the Winam
Gulf, Kisumu Municipality is the third largest urban
centre in Kenya with an area of 417 sq.km. of which
260 sq.km. is land and 157 sq.km. is water. The town
had an area of 53 sq.km. upto 1976 when the boundary
was extended to its present size.

The name Kisumu is derived from a Luo word
'Kisuma' which means a place where the hungry get
sustainance. It developed as a central place for
bartering and thus the name Kisuma.

3.2   Relief and Drainage

The Municipality of Kisumu lies in the down-
faulted lower ridge on the floor of the geographically
complex Nyanza rift valley. Originally the town
covered the residual hill which now contains half
of the built up area including the commercial centre
government offices and the better residential areas.-
This is due to the fact that this area is better
drained and thus was settled first by the railway
workers and the colonial administrators. The
Municipality has however expanded to include the
poorly drained areas such as Nyalenda and Nyamasaria.
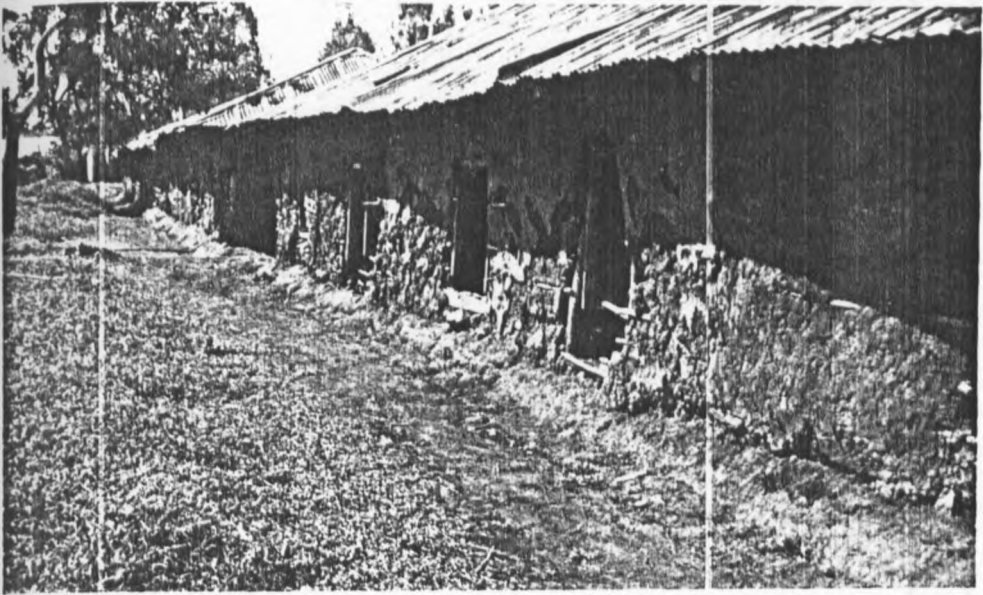
Plate 3:   Type of Schools in the Slum Areas and the
           Rural Parts of the Municipality.

Plate 4:   Upgrading of Schools in the Slum Areas.

Legend:

- ——— INTERNATIONAL BOUNDARY
- —·— PROVINCIAL BOUNDARY
- □ PROVINCIAL CAPITAL
- KISUMU STUDY AREA
- ▮ NATIONAL UNIVERSITY
- ◆ POLYTECHNIC

Sudan

Ethiopia

Uganda

RIFT VALLEY

WESTERN

□ KAKAMEGA

KISUMU

NYANZA

□ NAKURU

CENTRAL

NYERI

□ EMBU

EASTERN

NORTH EASTERN

Somalia

□ GARISA

▮ NAIROBI

COAST

Tanzania

◆ MOMBASA

INDIAN OCEAN

PLANNING FOR EDUCATION IN

KISUMU MUNICIPALITY

△
N

SCALE

ONYANGO G.M.

KISUMU: NATIONAL CONTEXT

MAP 3

M.A. THESIS
D.U.R.P.

REGIONAL CONTEXT
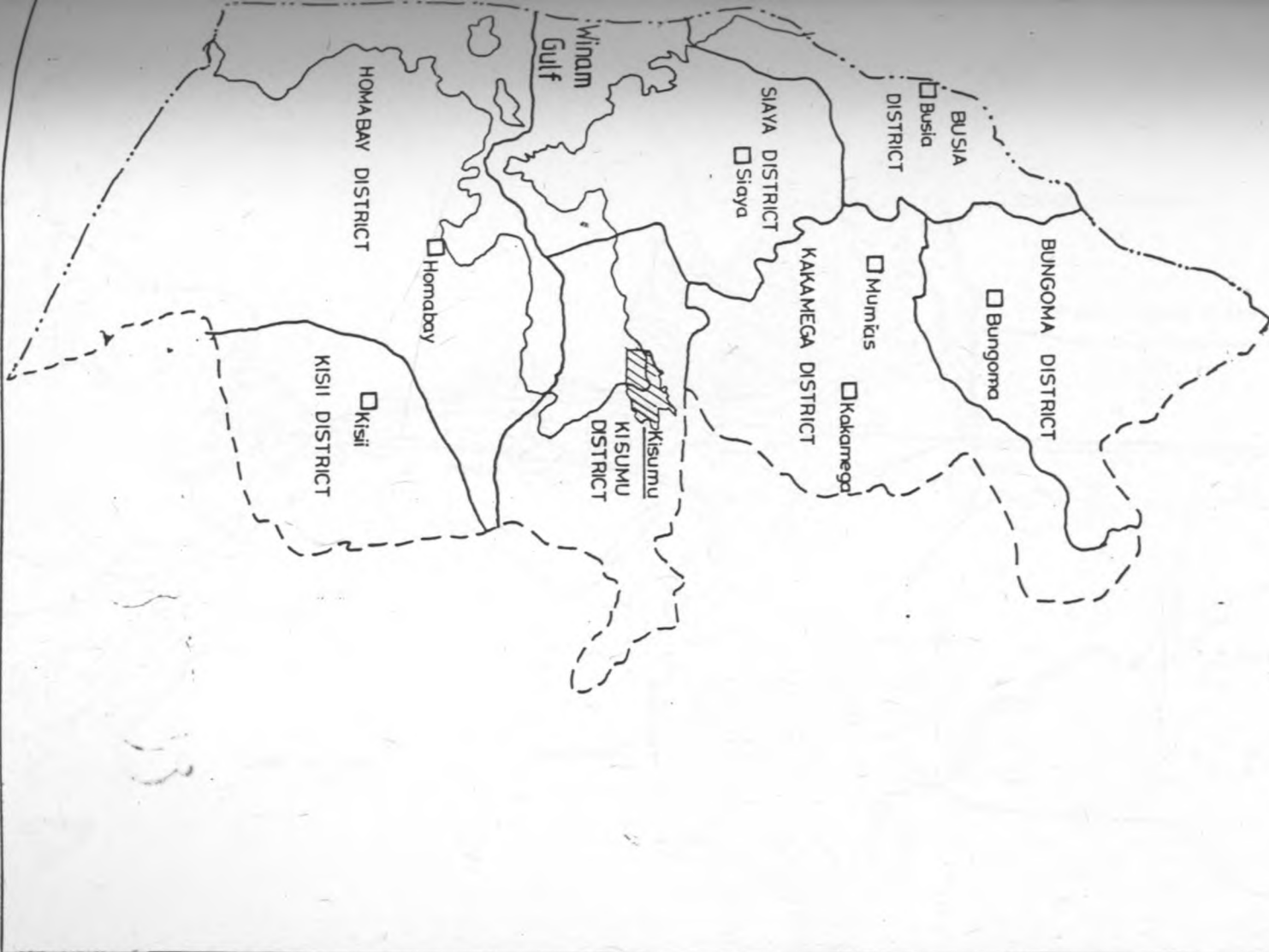
Legend:
- — · — NATIONAL BOUNDARY
- — — — PROVINCIAL BOUNDARY
- ——— DISTRICT BOUNDARY
- ///// KISUMU MUNICIPALITY
- □ MAIN URBAN CENTRES

HOMA BAY DISTRICT

□ Homabay

KISII DISTRICT

□ Kisii

Winam Gulf

SIAYA DISTRICT

□ Siaya

KISUMU DISTRICT

□ Kisumu

BUSIA DISTRICT

□ Busia

KAKAMEGA DISTRICT

□ Mumias

□ Kakamega

BUNGOMA DISTRICT

□ Bungoma
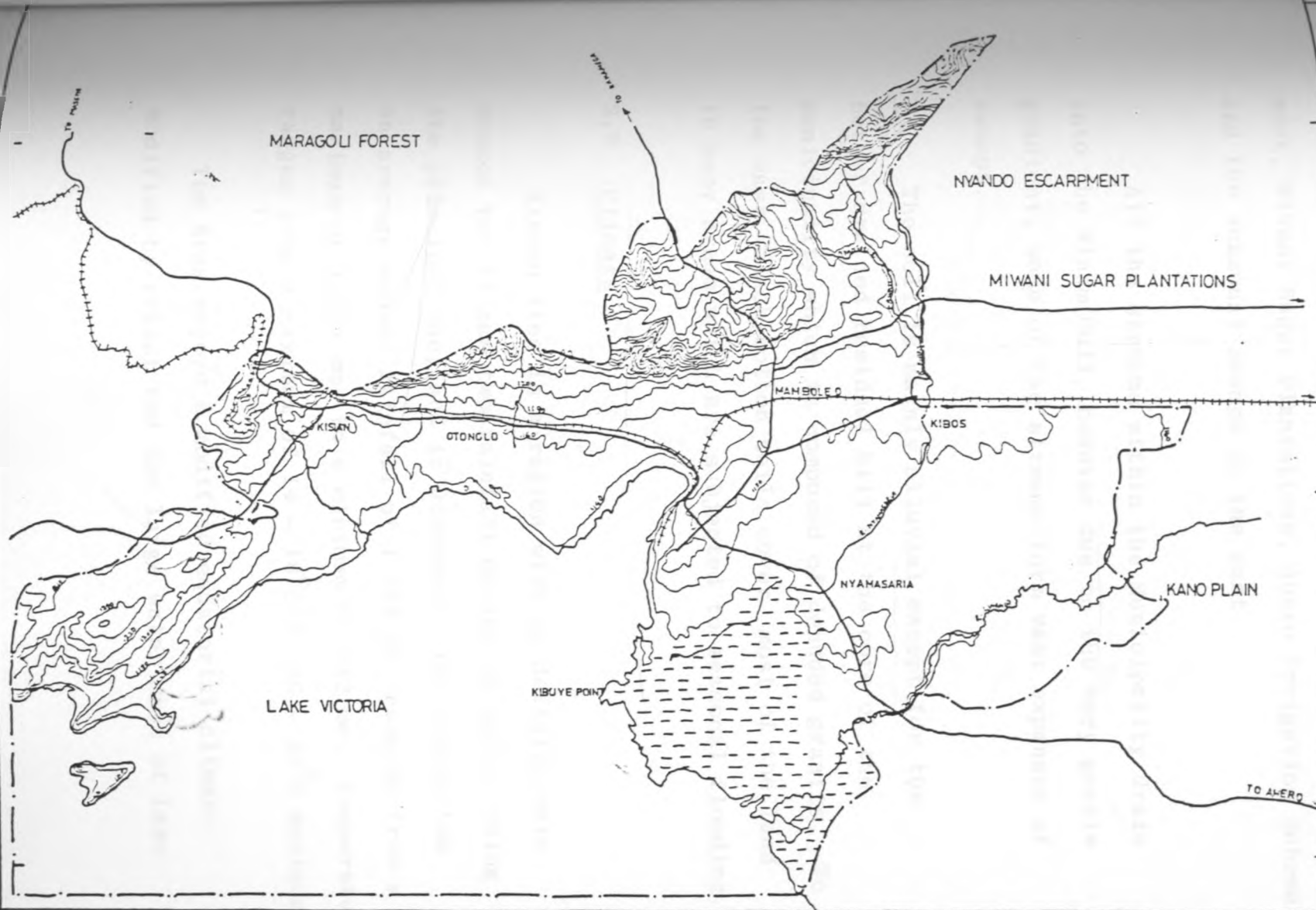
LEGEND

- · - · MUNICIPAL BOUNDARY
- CONTOURS
- RAILWAY LINE
- ROAD
- RIVER
- SWAMP

MARAGOLI FOREST

NYANDO ESCARPMENT

MIWANI SUGAR PLANTATIONS

MAMBOLEO

KISIAN

OTONGLO

KIBOS

NYAMASARIA

KANO PLAIN

KIBUYE POINT

LAKE VICTORIA

TO AHERO

PLANNING FOR EDUCATION IN

KISUMU MUNICIPALITY

Δ
N

SCALE

KILOMETERS

SOURCE. KISUMU STRUCTURE
PLAN 1983 - 2013

RELIEF AND DRAINAGE

MAP 5

M.A. THESIS
D.U.R.P

Expansion of the Municipality is limited by the Nyando hills to the north, Lake Victoria to the south west, Miwani Sugar Plantations, Ahero Irrigation Scheme and the seasonal swamps to the east.

All the streams within the Municipality drain into the Winam Gulf, however due to the very gentle gradient, some of the streams form vast expanses of swamps.

The soil is mainly alluvial except for the better drained residual hill at the core of the municipality which is composed of denuded granite. To the east, black cotton soils cover most of the land in many areas which are subjected to seasonal flooding.

3.3   Climate

Kisumu lies in a region with no definite rain season but it has two rainfall maxima in April, being the principal one, and in December. The region has an average annual rainfall of 1,278 mm. ranging from a maximum of 1,884 mm. to a minimum of 942 mm. Temperature ranges from a maximum of $14 - 18^{O}C$ to $26 - 34^{O}C$ maximum.

The area enjoys a modified equatorial climate modified by relief and the large water mass of Lake

Victoria. This results in great variations of rainfall. The basin form of the lake tends to increase temperatures although the lake itself exerts a cooling effect, thus resulting in temperatures lower than an equatorial climate.

3.4   Historical Development of Kisumu

The surveyor for the Uganda railway found that the shortest and cheapest route from Mombasa to Lake Victoria was over the Mau ranges down the Nyando valley to Ugowe (Kisumu). This initiated the decision to move the headquarters of Western Kenya to Ugowe. The town was founded in preparation for the arrival of the railway in 1898. It was named Port Florence after the wife of Ronald Preston, a railway engineer. The chief engineer Captain George Whitehouse who founded the town developed it as an alternative railway station and port replacing Port Victoria near the mouth of River Nzoia.

In 1901 the Uganda Railway reached Kisumu thus opening up the region and connecting it to the rest of the country. By 1903 when the railway was opened to full use it was moved to the higher ground on the northern side of the Gulf thus setting a precedent for future town growth. In 1902 the name

Florence had been dropped in favour of Kisumu.

By 1910 Kisumu was the main township and trading centre in Nyanza, a role it has kept to this day. It also had a high concentration of industries surpassing other urban centres in Western Kenya, and thus it had a higher percentage of African population than any other town in the region thus creating a need for planning of facilities such as schools.

After 1918 the young men recruited by the British East African Police force which had established itself there in 1905, were among the first local people to go to the town.

However when in 1920 the Nakuru-Tororo line was opened, Kisumu began to decline, rapidly, which decline it is still recovering from.

Under the new Township Ordinance No. 63 of 1930 Kisumu was designated a Grade A Township and the boundary was reduced to the 1923 limit to make it 'more manageable" This reduction in boundary limits effectively excluded the African neighbourhood.

In the 1938 - 48 period there was a mass out-migration from the town as the gold rush declined and the Tororo line took its toll.

By 1941 the town had its own local government.
Tenant purchase and rental housing schemes were developed
in the late 50's but they could not compete well with
the cheaper peri-urban housing which continued to
to grow at a tremendous rate.

This development of uncontrolled settlement has
caused planning problems especially in the provision
of community and social facilities.

In 1962 Kisumu became a Municipality covering
53 sq.kilometres. In 1976 the boundary was extended
to cover 417 sq.km.

3.5   Planning in Kisumu from 1900 - 1986

Kisumu, planned as a terminus for the railway
line has since developed to a regional centre serving
most of Nyanza and Western Provinces. It is necessary
to understand how the town is planned to appreciate
if it is capable of playing its role as a major
national centre and a regional capital.

The first plan prepared for the town by Ternand
and Hobley included provision of landing wharves along
the lake shore, govenment buildings and commercial
area. The residential area was planned somewhat further
offshore.
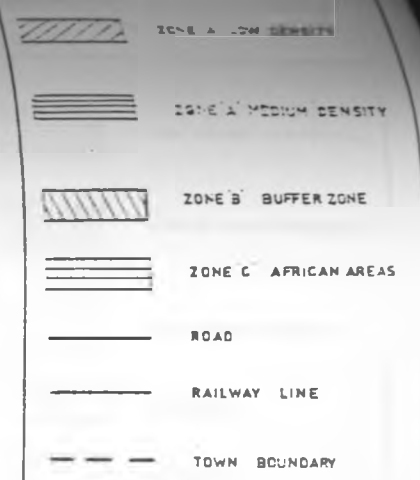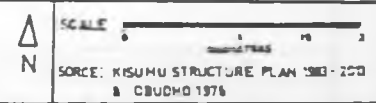
RESIDENTIAL LANDUSE PATTERNS 1908

LAKE VICTORIA

TO MIWANI

| | ZONE A LOW DENSITY |
| ZONE A MEDIUM DENSITY |
| ZONE B BUFFER ZONE |
| ZONE C AFRICAN AREAS |
| ROAD |
| RAILWAY LINE |
| TOWN BOUNDARY |

PLANNING FOR EDUCATION IN

KISUMU MUNICIPALITY

SCALE

SORCE: KISUMU STRUCTURE PLAN 1983 - 2013
& OBUDHO 1976

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MAP 6   M.A.THESIS
D.U.R.P
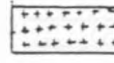
LAKE VICTORIA

MAJOR LAND USER 1929-1950

HIGH DENSITY RESIDENTIAL

MEDIUM DENSITY RESIDENTIAL

LOW DENSITY DENSITY

COMERCIAL

INDUSTRIAL

—·—··—··— SQUATTERS / SLUM AREA

PLANNING FOR EDUCATION IN

KISUMU MUNICIPALITY

Δ
N

SCALE

SOURCE: KISUMU STRUCTURE PLAN +
1970-2000 & OBUDHO 1978

►MAP 7   M.A. THESIS
D.U.R.P

LAND USE   1969- 1986

PLANNING FOR EDUCATION IN

KISUMU MUNICIPALITY

Δ
N

SCALE

SOURCE: KISUMU STRUCTURE PLAN (D-203)
& FIELD SURVEY

MAP 8   M.A. THESIS
          D.U.R.P

Legend:

HIGH DENSITY SLUM SETTLEMENT

MEDIUM DENSITY HOUSING

LOW DENSITY HOUSEING

INDUSTRIAL

PUBLIC PURPOSE

COMMERCIAL

S   SECONDARY SCHOOL

P   PRIMARY SCHOOL

ROAD

RAILWAY LINE

OLD MUNICIPAL BOUNDARY

TO MASENO

TO MIWANI

Kanyakwar   Migosi

Manyatta

Milimani

Nyalenda

Pandpieri

LAKE VICTORIA

TO NAIROBI

A bubonic plague outbreak in 1908 led to the
zoning of residential areas. Zone A would have the
Port, official residence, for officers, headquarters,
Jail, police lines, hospital and was occupied by
Indians and Africans employed in the town, and white men.
Zone B was a buffer zone between zone A and zone C
where the bulk of squatters lived, thus stopping the
spread of the plague (Obudho, 1976).

After World war one a plan was prepared zoning
land according to ethnic background (Obudho, 1976).
Thus the African areas were divided among different
ethnic groups such as the Nubians, Waganda, Wanyamwezi
and most of these areas have upto very recently retained
these ethnic characteristics.

Therefore we find that areas in former zone A
have tended to be better planned while the African
areas have remained slum settlements.

By 1969 the town had well established zones
which were mainly a result of colonial planning.
The short term development plan for the town prepared
in 1969 for a five year period did not do much to
change the land use pattern and Obudho (1976) points
out that the planning and layout of the better residential
areas and the town centre can be traced as far back
as 1902.

The 1969 plan and the structure plan of 1983 - 2013 both point out that migration into the town would be the main factor influencing the town's growth.

By 1986 the town had a commercial zone with Oginga Odinga road as its centre. This zone surrounded better shops and warehouses to cater for the town and the region. Down Oginga Odinga road was the so called bazaar area, which was more African than the Asian dominated areas on the upper part of the road.

The Milimani area is mainly made up of high income people and the densities here are about 30 persons per hectare.

There are medium income houses in the areas near Kanyakwar. However Municipal housing estates are now also considered as medium income houses because though they are relatively cheap they are unaffordable for the people earning less than 1,200/- per month who are categorised by the C.B.S as low income earners. However a lot of sub-letting is practised.

To the north-east and the east are peri-urban suburbs made up of slum settlements of Pandpieri, Nyalenda, Manyatta, Migosi and Kanyakwar. These

areas house the majority of the urban population and have continued to do so as new migrants move into town.

At present the town is set to expand rapidly. The government decentralisation policy, the rejuvination of the E. African trade by road and lake has set the pace for rapid and high migration rates in the town.

The peri-urban slums are being upgraded (Plates 3&4) thus providing a better residential environment. Land has been acquired to the north of the town for construction of new housing. In fact in the past three year housing construction has been booming in the town financed by Housing Finance Companies and co-operative societies. A site and service scheme has also been started.

What does this portend for the town as a regional capital and a major national urban centre in terms of education?

As new housing estates grow, there will be need for new nursery, primary and secondary education.

3.6 Regional Functions

Regions can be defined by several factors, including industry, farming, population distribution, commerce or the general sphere of influence.

Dickinson (1964) defines a region as primarily a functional entity. Geographically it extends as far as the city, exerts a dominant influence. Its influence is effected in its environs by a radiating system of traffic routes, each of which in it's turn is a local centre of radiating routes through which it, rather than the metropolis, becomes the dominant centre for local affairs.

Kisumu is the dominant town in western Kenya interconnected to Tanzania, Uganda, Western and Nyanza Provinces by traffic and rail routes. Commerce and industry in Kisumu needs no emphasis in its dominance in the region.

Kisumu experiences a nett immigration unlike the surrounding districts, (Oucho, 1974). However the region has been a labour reservoir in Kenya to the detriment of the region. But this trend is changing as the town grows thus attracting more and more inmigrants.

Basically the region is an agricultural region though fishing is undertaken on the lake. Cash crops include cotton, sugar, cane, coffee and tea as the major cash crops. However maize and beans are sold as surplus. Grade cattle have also been introduced in

the region thus increasing milk production.

The Kano plains and the Yala swamp are areas
where rice production is undertaken as a commercial
scale.

Kisumu town accommodates a complexity of resources
which raise the level of migrants' expectations, hence
its dominance as an area of in-migration.

This rapid in-migration has caused poor housing
conditions as noted by the field survey. Thus
necessitating prompt action to reduce a situation
where there might be no adequate provision for planning
social and community facilities.

Kisumu may for a long time continue to be the
core centre from which modernisation diffuses to all
parts of the region (Oucho, 1974). This is especially
so in secondary and other post primary forms of
education. It has attracted students from all over
the nation, especially the western region and this puts
a constraint on the existing facilities. Education
institutions of a wider threshold will most likely be
established in the town since it acts as a centre for
most of the development in the region.

The fact that education plants are of a better
standard in the town has resulted in pupils moving into
town to stay with friends and relatives to take advantage
of these facilities. Thus planning for education must
be viewed not only in the local context but the regional
context too.

3.7 Existing Education Facilities

By 1986 there were fifteen secondary schools
within the Municipality. Of these only five offered
"A" level education. Four were government schools and
the rest were either private or Harambee.

Government schools have tended to have large
numbers of students as parents attempt to give their
children a better chance of performing well in school.

Apart from Kibos high school, all the secondary
schools are located within the old Municipal boundary,
thus students from most parts of the Muncipality would
have to travel long distances daily to school.

Since the extension of the Municipal boundary
in 1976, the number of primary school under the
jurisdiction of the Municipal Council has more than
doubled. This has resulted in a situation where the
Council has to bring the schools to urban standards.

MUNICIPAL BOUNDARY
OLD MUNICIPAL BOUNDARY
TARMACED ROAD
MAIN EARTH ROAD
OTHER TRACKS
RAILWAY LINE
ADMINISTRATIVE BOUNDARY
X   SECONDARY SCHOOL
PRIMARY SCHOOL

KODERO
SWAHILI
KONYA
WATHOREGO   TO MIWANI
DACO
RIAT
KANYAKWAR
KANYAKWAR
KORANDO
OJOLA
KOGONY
MANYATTA
CHIGA
KASULE
NYALUNYA
KANYAWEGI
BUOYE
COTU College
NYALENDA
LAKE VICTORIA
TO MIWANI
TO AHERO

PLANNING FOR EDUCATION IN
KISUMU MUNICIPALITY

SCALE

N

SOURCE: MUNICIPAL EDUCATION DEPT.

EXISTING SCHOOLS AND ZONES

MAP 9   M.A.THESIS DURP

It is important to note here that primary schools,
like secondary schools, are generally concentrated
within the built up area and the rest of the municipality
has schools located sparsely. This is mainly due to
the lower density of population in these areas.

Ramogi Institute for Science and Technology
is the only post secondary College offering formal
education. There is no Teachers College in the
Municipality despite its regional role. Commercial
and secretatrial colleges have began to spring up but
these are not considered in this study since they fall
outside the scope of formal education.

It is therefore necessary that one looks at
not only the supply and demand, but also the possible
distribution of the population in future.

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CHAPTER FOUR

4.0 POPULATION, AND EDUCATION PLANNING IN KISUMU

4.1 Population Growth in KISUMU:

An assessment of population for Kisumu can be undertaken to a good degree of accuracy for the short-term, but for the long term several assumption have to be made.

In planning we plan for people and when population projections are made it is to allow the planner to be able to show what facilities and where there facilities are needed. Therefore overestimation can be taken care of as the implementation continues.
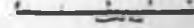
In order to estimate the population of Kisumu due to migration, it was assumed that the number of immigrants to Kisumu during the period between 1969-1979 equals the population of Kisumu less the survivors of the original 1969 population in Kisumu and less the survivors of the population born in Kisumu during the period.

To determine the population of the town, it was assumed that population structure will remain constant.

PERSONS PER km²

ABOVE 800

600 – 800

400 – 600

200 – 400

0 – 200

RAILWAY LINE
ROAD
OLD MUNICIPAL BOUNDARY
NEW MUNICIPAL BOUNDARY
ADMINISTRATIVE BOUNDARY

TO NASENO

TO MIWANI

KODERO

SWAHILI   KONYA

DAGO

WATHOREGO

KANYAKWAR

TO MIWANI

KORANDO

OJOLA

CHIGA

KOGONY

MANYATTA

TO BONDO

KANYAWEGI

KASULE

NYALUNYA

BUOYE SUB-LOCATION

BUOYE

NYALENDA

LAKE   VICTORIA

TO AHERO

PLANNING FOR EDUCATION IN

KISUMU MUNICIPALITY

SCALE

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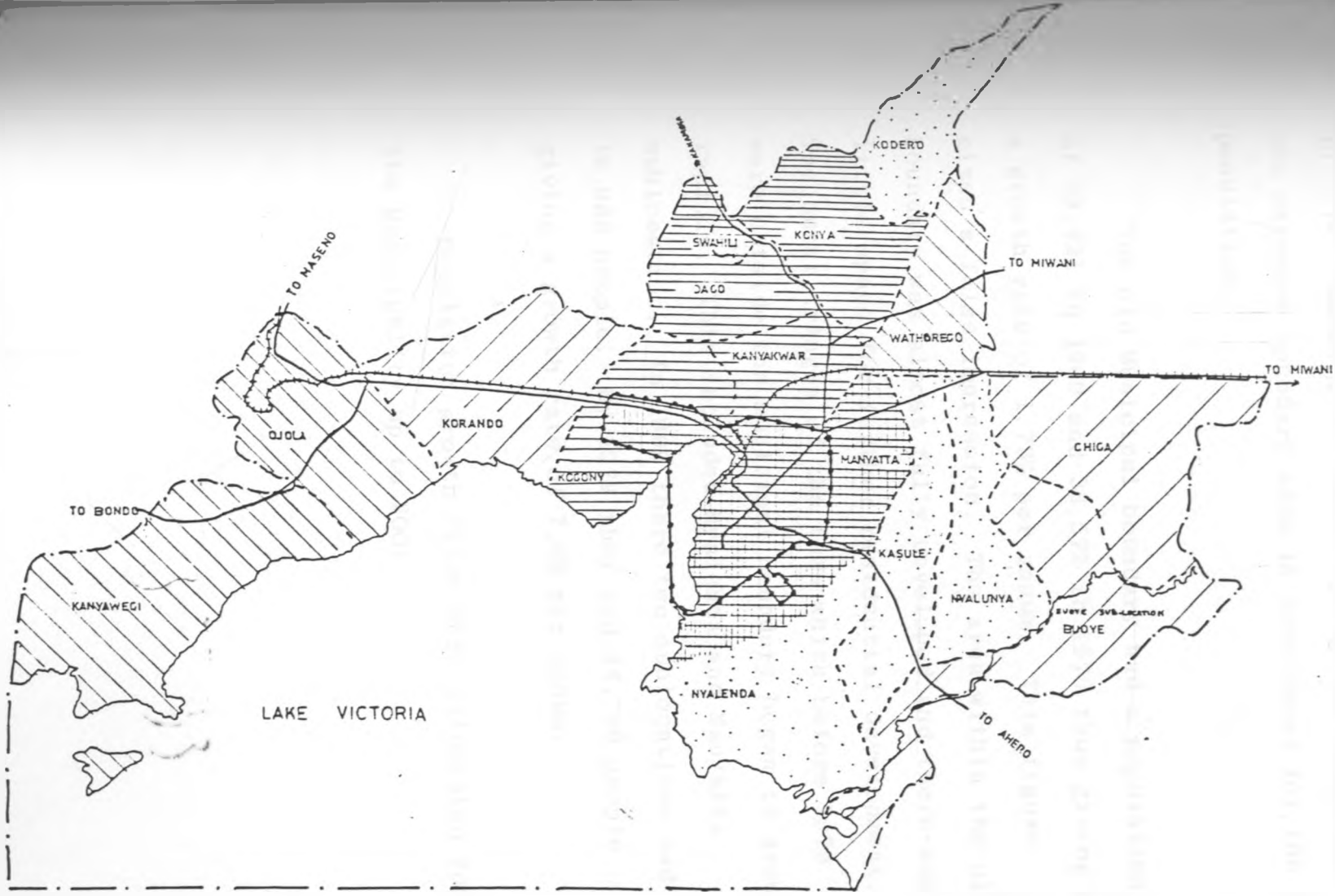
SORCE   POPULATION CENSUS 1979

POPULATION DISTRIBUTION   1979

MAP 10   M A THESIS

Comparing the population of 1969 and 1979 Kisumu had a population growth rate of 3.99% per annum with the 1969 population of 101,809 rising to 132, 643 in 1979. However in these figures the population in the extended boundary area is considered for the 1969 population.

The old Municipal boundary had a population of 32,421 in 1969 and 38,572 in 1979 thus giving it a growth rate of 1.73% per annum. This figure gives a false impression. The area within the old boundary was almost fully developed and there was little space for further residential development. The outer fringes of the town which before 1979 were outside the municipal boundary began to grow rapidly. This included Myalenda and Manyatta sublocation. In 1969 there two sublocations had 19,988 people. By 1979 they had 44,786 people giving a growth rate of 7.6% per annum.

Population growth rates were calculated for the Municipality up to 2001.

Table 4: Population Growth Rates (Calculated)

	Total Growth Rate	National Growth Rate	Migration Rate
1979-1986	7.65	3.5	4.15
1986-1991	7.7	3.2	4.5
1991-1906	6.32	2.9	3.42
1996-2001	5.9	2.7	3.2

We see that the migration rates have been higher than natural growth rate thus most of the urban population growth is attributed to migration. We must however note that migration was mostly to the Migosi, Nyalenda and Manyatta sublocations in period upto 1986. Nyalenda and Manyatta had a growth rate of 5.8% and 9.7% respectively between 1969-1979.

As the migration continues Migosi and Kanyakwar will continue to accommodate the population in the near future.

Kisumu is both a provincial and a district headquarters and thus there has been an increase of activity as the District Focus strategy gets implemented and other government and industrial decentralisation policies. Other sources of migration

could be attributed to the relatively higher levels
of employment. Thus people have tended to move in
search of employment.

Kisumu has a regional catchment and has attracted
people mostly from Western and Nyanza Provinces.

From the sample survey the distribution of the
migrants was as follows.

Table 5:

Plate of Origin	in %
Municipality	8.9
Kisumu District	13.0
Siaya District	48.0
South Nyanza District	18.0
Western Province	8.4
Rest of the Country	3.7

Migrants Distribution by place and origin

We therefore see that Siaya had the largest
single population catchment of 48% making up
almost half the population of Kisumu. This may
be attributed to the fact that before the
establishment of Siaya town and the District focus

strategy, Siaya District had no major urban centre.
Kisumu provided most of the major urban services for
Siaya town thus creating a strong pull. However
Siaya town's rapid growth (sometimes estimated at
21%) is expected to minimise the great migration
from Siaya.

If Siaya can reduce the migrant population by
60% by the year 2000 A.D., the migration rate
would fall to 5.90% assuming that the migration
from the other districts, remain the same. This can
be said with some assurance because Kisii, South Nyanza
districts and Western Province have well established
urban centres and there is little indications that
out migration from these areas will reduce substantially
due to more urbanisation.

The population of Kisumu will grow at a natural
rate of about 3% per annum since family planning effect
is reported to be very slight.

The distribution of population by age will be
affected by migrants but it is not easy to determine
the proportion of the migrants by age but the
researcher has made the assumption that the population
distribution by age will not change greatly due to

migration. Assuming a population growth rate of
about 7% up 2000 A.D., the projected disagregate
population for Kisumu is expected to be as follows:

Table 6:

| | GR=7.7 | GR=6.32 | GR=5.9 | |
Age	1986	1991	1996	2001
0 - 4	56,386	79,987	108,666	144,734
5 - 9	35,184	47,992	67,069	86,821
10 - 14	32,016	43,471	59,057	78,660
15 - 19	35,712	49,384	67,089	89,457
20 - 24	26,208	34,777	47,246	62,928
25 - 29	21,816	31,299	42,521	56,635
30 - 54	41,880	59,121	80,318	106,978
55+	1,344	1,739	2,362	3,146
Total	240,000	347,770	474,328	628.359

Population Distribution by age-groups

From the above data we see that the age group 15-19
has a slightly bigger population than would normally
be expected. This is attributed to the fact that
this is the secondary school-going age and this
population migrate to Kisumu to take advantage of
the secondary schools there.

4.2. Education Institutions: Supply and Demand

The education system in Kenya is such that the higher one goes in the education ladder the higher the probability that one will not reach the next level. Therefore only a small percentage eventually end up in a higher education institution.

Fig. I.
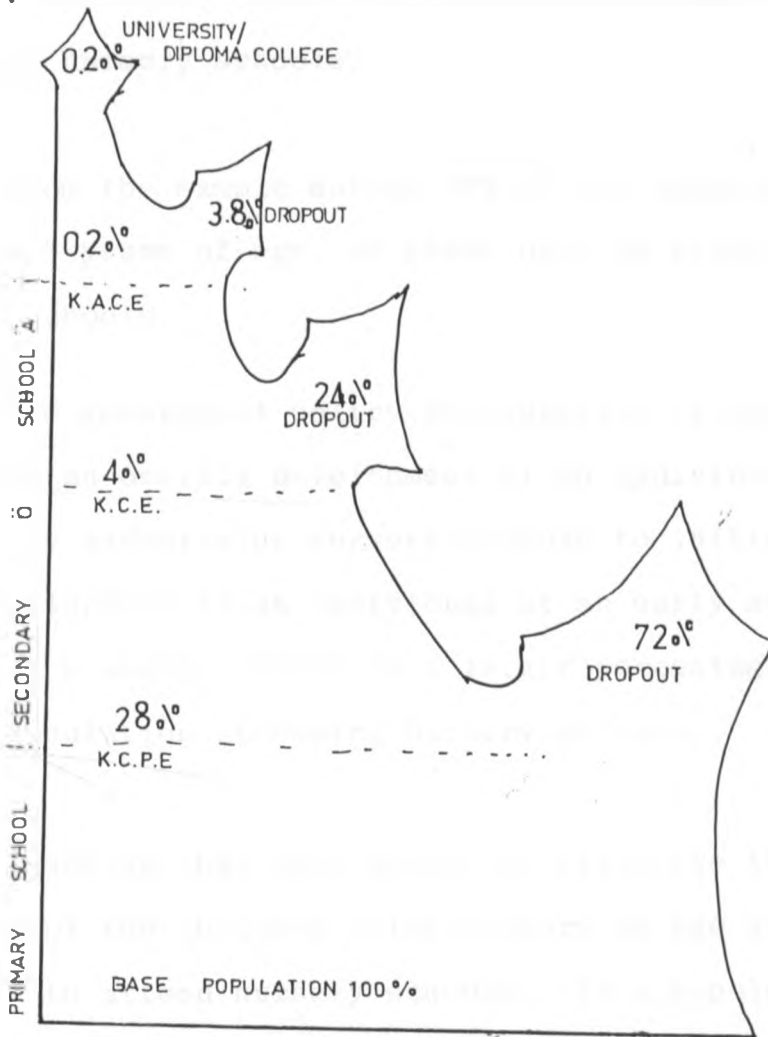
Dropout Distribution of students by education level based on statistical Abstract, 1984.

4.2.1 Nursery Schools

There are 45 nursery schools in the Municipality serving a population of 240,000 people. This means that a nursery school serves about 5,000 people.

Both the Town Planning Handbook (1971) and the Nairobi Urban Study Group (1974) state that one nursery school should serve 2,500 people. Thus we see that on this basis there is a shortfall of 50% in the supply of nursery schools.

From the sample survey 20% of the population is below 5 years of age, of there only 6% attend nursery schools.

The government policy on education is now aiming at an overall development of an individual thus it is encouraging nursery schools to initiate this development in an individual at an early stage. This policy should result in a larger percentage of the population attending nursery schools.

Assuming that this policy is effective then upto 50% of the children below 5 years of age are expected to attend nursery schools. In a population of 2,500 people we would have 500 children below five years and 250 would be eligible for nursery schools.

If we took 50% of this eligible population (250)
then 125 pupils would attend. Thus a nursery school
would need three classes assuming that each class has
about 40 pupils and six classes of 40 pupils each
if there was 100% attendance.

The alternative perspective for nursery
schools is as shown below.

Table 7:

Alternative	No. of nursery schools	Total number of stream	Total pupils eligible per 2,500 people	% attendance	No. of students per stream
a	2	2	125	50%	63
b	2	2	125	50	42
c	1	4	250	100	63
d	1	5	250	100	50
e	1	6	250	100	42
f	2	6	250	100	42

Perspective for Nursery Schools.

4.2.2   Primary Schools

The Town Planning Handbook (1971) stipulates
that a day primary school should serve 5,000 people
if it has two stream. The Nairobi Urban Study Group

(1974) also states that a primary school should serve 5000 people.

With the introduction of pre-primary streams in primary schools which cater for 5 years olds before they move to Std. one and the expansion of the primary schools to include Std. 8, the population eligible for primary school has been greatly increased.

This new approach to education is expected to develop the moral, intellectual and physical characters of a person. The non-formal aspects of the system are aimed at developing skills in an individual which hitherto had been neglected.

From the population analysis we find that the population from age 5 to 14, which is the population eligible for primary in 1986 was 70,897.

In 1986 there were 604 streams in the primary schools in the Municipality with about 50 students per class. There were 27,718 students attending primary school. Pre-primary classes are not established in most primary schools thus if we disregard the pre-primary population we find that 39% of the eligible students were attending primary

school. This low attendance can be attributed to the
high school dropout, estimated at 3% per year
per class by Sifuna (1986) especially in upper
primary mainly in the rural parts of the Municipality.
Early pregnancy has been postulated as one factor
for this phenomenon.

The government aims at Universal Primary education
for all by 2000 A.D. However we must also remember
that some people do not 'enjoy' formal education. But
with the introduction of non-formal education
in primary school and free-education, it is expected
that most students can now develop their craftsmen
skills without the worry that the education they are
getting is useless. It is expected that more
students will attend schools since there is "free"-
primary education and they can study subjects other
than grammer. To pre-empt this expected increase in
attendance it is necessary to evaluate the consequences
in the provision of primary schools.

In a population of 5,000, given that 28% of the
population is eligible for primary education, we
would expect 1,400 children. If we had a 90%
attenance then 1,260 would need to be catered for
at present. On average a class has 50/students

though originally classrooms were built for upto 45
students. However new classes are being constructed
for 50 students and this will be the basis for this
evaluation.

We would therefore need 28 classrooms for 1400
students. Each stream has classess from preprimary to
Std. 8 thus a total of 9 classrooms per stream. We
would thus require a three stream primary school for
a population of 5000.

The alternative perspectives for primary
schools are shown below.

Table 8:

Alterna-tives	No. of schools	No. of streams per school	Total student eligible (at 90% attendance	Totál population	No. of student per class
a	1	3	1260	5000	47
b	1	4	1260	5000	35
c	1	2	1260	5000	70
d	2	1	1260	5000	70
e	1	4	1960	7000	54
f	1	5	2520	10000	56

Note: Each stream = 9 classrooms.
       Perspective for primary schools.

If we wanted to reduce the schools we could have one
primary school for 10,000 people as shown in
alternative (f). This would cater for dropouts
especially in the higher classes. If we had a
primary school for 7,000 people, alternative (e)
would be applicable. The existing schools have on
average 50 students per class and this alternative has
a population per class like existing trends. It also
reduces wastage of classrooms due to dropouts at
higher levels.

4.2.3 Secondary schools

There are currently 15 secondary schools within
Kisumu Municipality with a total of 737 students in "A"
level and 4,778 in "O" level.

The Government policy that 85% of the students be
absorbed in secondary schools at district level
has great implications for Kisumu. It means that
it is must be able to absorb most of it's students.

Another factor to consider is the 8.4.4.
education system. Secondary schools have an "A"
level stream which is expected to prepare students
for University education. The working party on the
second University (1982) found that this system has

several weaknesses. "A" levels have tended to overproduce Arts students since it is cheaper to maintain on Arts stream but at "O" level the distri÷ butions between Arts and Science subjects is more or less the same. Areas with no "A" level streams had little chance of getting their students into the University thus they tended to lag behind, so it is argued.

It is on this basis that the analysis shall look at the provision mainly of "O" level classes since in three years time the "A" level classes will have been phased out. But it shall be necessary to look at the expected drop out from the formal education system of the secondary school graduates.

From the sample, it was found that 13% of the students in secondary schools were in schools in the district, 30% were in schools within the province but outside Kisumu district, 15% were in schools in district outside Nyanza Province, and 40% were in schools within the Municipality. With the implementation of the Government policy of 85% absorption of students by local schools, the municipality will have to absorb an extra 112% of existing students.

In 1986 there were about 36,000 students
eligible for secondary schools upto "O" level.
Therefore we see that only 13.3% were catered for
leaving a big majority uncatered for. An increase
of 112% in intake will mean that about 5,300 students
have to be absorbed. Therefore as per this year the
municipality has to absorb 10,153 students.

Between 1973 and 1983 the growth rate for students
going to secondary schools in the municipality has been
6.27%. This has been attributed to the expansion
of schools and the construction of new ones. However
this growth rates is far below the town's growth rate
of about 8% per annum. Thus we see that we either
have to reduce the growth rate of population or increase
the rate construction of schools.

There has been a tendency for the rural community
to drift into the schools in the town. This is
shown by the distribution of population of secondary
school age. There migrants put more pressure on these
limited facilities.

From the sample survey of schools, it was
found that 16% of the students come from outside the
municipality. This percentage is increasing as the

trend of migration continues. The growth rate of 6.27%
in the secondary school population absorbed in Form
One has been a result of the need to absorb students
who have passed their C.P.E. (now K.C.P.E.) exams.
Assuming that this growth rate continues then
secondary school population would take the trend below.

Table 9:

Year	Eligible students from total pop.	Annual school pop. increasement (by Form One) cummulative	Popuation in School	% of eligible pop. in school
1986	35,712	1,737	5,153	14.43
1989	44,613	2,085	7,630	17.10
1992	55,731	2,502	9,156	16.4
1995	66,980	3,003	10,987	16.4
1998	77,982	3,604	13,189	16.9
2001	89,457	4,325	15,828	17.7

Secondary School Population Trend to   2001

Thus we can see that the percentage absorbed in
secondary schools will take a constant trend if the
present rate of expansion is maintained.   It is
therefore necessary to not only increase the rate of
expansion to meet the growing demand, but to expand the

secondary schools so that more students may be able
to get some form of secondary education and thus
increase the population with secondary education.
This is crucial in the provision of skilled man-power
for economic growth and development.

The expansion of secondary schools is expected
to absorb 85% of students who qualify in Kisumu thus
a need to cater for about 10,000 students. This is
28% of the total eligible students.

The T.P.D. handbook (1971) states that one
secondary school should be provided for 25,000 people
Kisumu with a total population of 240,000 should
therefore have 10 secondary schools.

However, if 30% of the students who are eligible
for secondary education are absorbed then the
Municipality would need more schools as shown below
as per 1986.

Table 10:

No. of streams (Cummulative)	Students per class	Number of schools		
		2 streams	3 streams	4 streams
216	50	27	18	14
240	45	30	20	15
270	40	34	23	17

Secondary School Demand as per 1986

From the sample survey the population eligible
for secondary schools was 14.88% of the total
population. In a population of 25,000 people, therefore,
3,720 would be eligible for secondary school. If 30%
were to be absorbed in a secondary school, we would
need several streams. Thus a population of 25,000
people would result in the following distribution of
streams.

Table 11:

Students per class	No. of streams	Number of schools			
		1 stream	2 streams	3 streams	4 streams
50	22	5	3	2	1
45	25	6	3	2	2
40	28	7	4	2	2

Perspectives for Secondary Schools

Therefore we see that the only case where we
can have one school for 25,000 people is when it has
four streams with 50 students per class.

At present only 4.2% of the population is in
secondary school. The population of secondary
school going age makes up 14.88% of the total
population. We thus have to consider,what happens to
10.68% who are not absorbed in secondary schools.

4.2.4   Post Primary Education

The Gachathi report (1976) which was prepared
by the Committee on Education Objectives placed a lot
of emphasis on providing basic primary education which
would help the school leavers to be self-employable.
This policy recommendation was not realised until the
Presidential working part on the Eastablishment of 9
Second University (1982) recommended the 8.4.4.
education system. This report set the pace for
changing the entire education system in Kenya.

The aim of this basic education is to enable a
primary school graduate to develop skills that make
them self-employable. However, most of the skills
taught in the primary school are rudimentary. Most of the
students finish their primary eduction before they
reach 15 years of age. They are still not mature
enough to undertake self-employment activities.

It is thus necessary to provide post primary
education to cater for those youngsters who do not
get places in secondary school.

From previous analysis we find that over 27%
of children who sit for K.C.P.E. are not absorbed in
secondary schools. As years go by, this figure

accumulates and we now have a large population who are young and have only rudimentary knowledge of craft skills.

Kenya's economy is structured such that people with formal education struggle to get employment due to the advanced technology and relatively high capital ratio. Formal eduction is not geared to producing people with knowledge and skills which are job specific thus one has to adopt to fit into any job that is available. Primary school graduates are the worst hit because their education is geared to advancement into secondary schools and not for employment purposes. The 8.4.4. education system has attempted to bridge this gap but emphasis is still placed on theory.

The non-formal education (N.F.E.) is expected to trim this widening gap. In Kisumu, Kisumu Technical school has been redeveloped to train primary school leavers who do not expect to continue with formal education as technician. But it cannot absorb more than 100 students who graduate annually from Std. 8.

The students who manage to get additional training are at an advantage in establishing their own employment ventures.

It is with the aim of providing these youth
with greater ability to be self employed that it has
been found necessary to establish a post-primary
eduction centre for developing skills other than
theoretical education.

Youth polytechnics which have tended to be
rural-based in Kenya are a response to the need for
N.F.E. It aims at giving primary school leavers skills,
understanding and values which will make them able
to look for money making opportunities where they live
and to contribute to development by building up the
economic strength of their community (N.A.I.D. 1974).

The Youth Polytechnics seem to fulfill the needs
of the Std. 8 graduates who want to develop their skills
further. It would therefore be necessary to establish
a youth polytechnic which is able to absorb at least
30% of these graduates who do not get places in
secondary schools. This will allow for evaluation
to see if it is necessary to expand or reduce such
a polytechnic.

If a Youth Polytechnic caters for 30% of
Std. 8 graduates who are not absorbed in secondary
schools and Kisumu Technical Institute, then it shall
need to cater for 150 students per year. A two year

course would thus imply that a total of 300 students would have to be catered for. Perkins and Cocking (1951) state that a workshop of about 120 m^2 should accommodate about 30 students. Thus if one workshop for 30 students is provided, thus such a polytechnic would need 10 such workshops but this can be reduced to 6 workshops of 50 students each, if they are expanded to 160 m^2.

4.2.5 Post Secondary Education:

The only such institution in Kisumu is Ramogi Institute of Advanced Technology (RIAT) located in the northern part of the municipality; it serves students from all over the province and other areas.

There is no Teacher Training College in the Municipality. Siriba College in Maseno serves Siaya district, parts of Western Province and Kisumu district. However with the establishment of a T.T.C. at Bondo in Siaya, Siriba has been left for Kisumu district and Western Province.

However with the District Focus strategy, it is necessary that Kisumu be self-sufficient in it's planning and growth strategies. In this respect Kisumu Municipality is considered by the researcher as

an autonomous district due to it's spatial expanse population and unique characteristics, including its rapid growth.

Out of the total 720 teachers in Kimumu 4.4% were untrained. This figure might increase if staff development programmes do not keep pace with the expansion in primary school. The ratio of trained teachers to students in primary is 1.40.

If this ratio is to be maintained then teachers population increament will be as shown assuming a 90% attendnace.

Table 12:

Year	Students in primary school	(A) Ratios of 1/40 Total no. of teachers	(B) Ratio of 1/50 total no. of teachers
1991	82,317	2,058	1,646
1996	113,513	2,838	2,270
2001	148,933	3,723	2,979

Teacher/Student Ratio

Alternative (B) is related to the present trend of 50 students per class. It is also less costly to implement.

However alternative (B) would mean that teachers will have to handly 8 periods a day. This is reality means that they shall have no free periods in which to prepare lessons, mark books, and other activities related to their jobs. It means that they have to encroach on their private time.

A ratio of 1 teacher for 40 students means that each teacher will have 32 periods per week. This leaves him with 4 periods (2 hrs. 40 mins.) in which to organise his work. It is thus necessary to aim at maintaining the present ratio of 1 teacher to 40 students and if possible reduce it.

It shall be necessary to increase the number of trained teachers by 3,723 by 2000 A.D. If this target is to be achieved then as from 1988, teachers should be increased at about 266 per year. This assumes that the present staff does not retire.

Assuming that the rate of training teachers is constant as has been since 1982 with an average of 11,300 teachers in T.T.C.'s in Kenya (Statistical Abstract, 1984) then we can reasonably assume that the same number retires every year. This would make up 11% per year.

Therefore the projected retirement of teachers for Kisumu would be as shown below:

Table 13:

Year	Total Number of Teachers Ratio 1:40	Population Retiring
1991	2,058	226
1996	2,838	312
2001	3,723	409
Total		947

Teacher demand

It shall therefore be necessary to add the population of retiring teachers to the general increase of teachers so as to maintain the level of 40 teachers per student. Thus by 2001 A.D. Kisumu shall require 4,670 teachers. It will therefore be necessary to train 334 teachers per year.

A two year course, college of upto 700 students should therefore be established in the Municipality to cater for it's needs in terms of teacher training. This college can be expanded as future needs require.

4.2.6   University and other Higher Colleges:

The Act which caters for University education
allows for the establishment of private universities.
In planning for education it is necessary to be
prepared for such an eventuality.

Kisumu as a regional centre offers a very good
social, economic and infrastructural network that
would allow for an easy establishment of a University.
The Town Planning Handbook (1971) suggests a college
for 250,000 people. This proposal estimate may be
too low for a country where about 2% the population
end up in the University. Thus in Kenya with it's
present 20 million population University education
would have to cater for about 20,000 people. This
figure will increase with time.

There are four Universities in Kenya
distributed as shown in Map 3.

We therefore see that the coastal region and
western Kenya do not have any   University Colleges.
Mombasa has a Polytechnic which cater for high skilled
technical manpower. Kisumu on the other hand has
no such facility yet it serves a vast region and has
a great potential for producing skilled manpower for

the region. It on this basis that education
planning in Kisumu should allow for the establishment
of a University when it becomes necessary.

Future establishment of a University, Public
or Private should move away from concentrating them
at the National Capital. If such a strategy is adopted
it is highly unlikely that the arid northern provinces
will be a strategic location. Unless there is a
deliberate policy to locate universities away from urban
centres then Kisumu in the long term offers a good
location. It will provide facilities for the students,
teaching and supportive staff. It also could provide
housing for non-resident students thus reducing
cost incurred in accommodating all students.

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        Cocking

CHAPTER FIVE

5.0   URBAN DEVELOPMENT AND EDUCATION

5.1   Residential Development and Places of Work

Residential development is related to location
of schools. It is these residential areas that determine
the number and size and location of education institution
especially nursery and primary schools.

This is so because the majority of students in
these institutions have to walk to and from school
daily. To allow them to reach their schools in time
without getting unnecessarily tired schools have to be
located within a reasonable walking distance from the
residential area. This distance is estimated at 0.25
to 1 km. This also depends on the age of the student.
Younger children walk slower and get tired faster so
it is necessary that nursery schools be located about
0.25 km. from the residential area.

The study looks at the density of housing in the
main built-up areas of the Municipality. In the low
density areas plots average 0.25 hectares thus giving
an average density of 25 to 30 persons per hectare.
This area occupies 7% of the residential land in the
town.

Medium density housing is generally of about
130 persons per hectare. These include mainly the
Municipal Council estates.

In the high density slum areas the density varies depending on the developer. - But on average people live in densities of about 1,200 persons per hectare. This figure is based on the survey which indicated that on a 0.25 ha. plot upto 50 dwelling units of one room each would be constructed housing an average of 3 people per unit. Such a high density is not bad in itself. The problem is the construction distribution. There are no storied buildings thus coverage can be upto 80% There are no spaces for children to play and the congestion leads to stress, squalor and many other related problems. Yet these high density areas house about 60% of the Municipality's urban population.
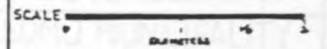
Education not only starts at home but continues at home after school. The child ought to have an atmosphere that enables him to continue developing skills that he has learnt at school. It is for this reason that it is necessary to have proper housing for the child. Housing gives a sense of well being and and helps build a healthier society.

If the density of 1,200 persons per hectare is maintained, it shall be necessary to build storied houses for these people. However storied houses are costly to build. Kisumu Municipality still has land that can allow for a more dispersed settlement for the next decade or so.

Legend:
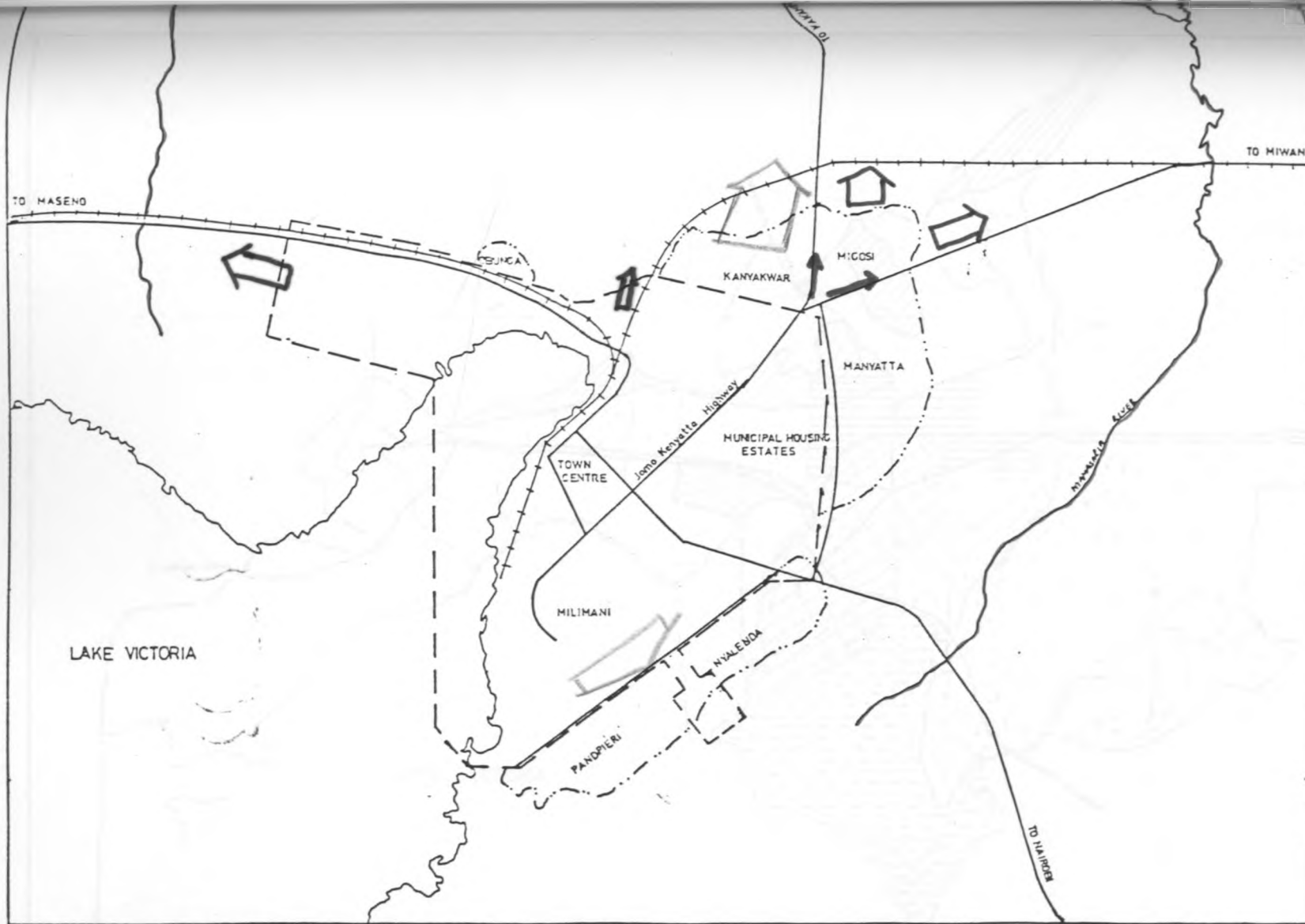
- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- OLD MUNICIPAL BOUNDARY
- SLUM SETTLEMENT
- ROAD
- RAILWAY LINE
- RIVER

TO MIWANI

TO MASENO

SUNGA

KANYAKWAR

MIGOSI

MANYATTA

TOWN CENTRE

Jomo Kenyatta Highway

HUNICIPAL HOUSING ESTATES

MILIMANI

LAKE VICTORIA

NYALENDA

PANDPIERI

TO NAIROBI

PLANNING FOR EDUCATION IN

KISUMU MUNICIPALITY

△ N

SCALE

ONYANGO G.M.

URBAN GROWTH CORRIDORS by 1986

MAP 11   M.A. THESIS D.U.R.P
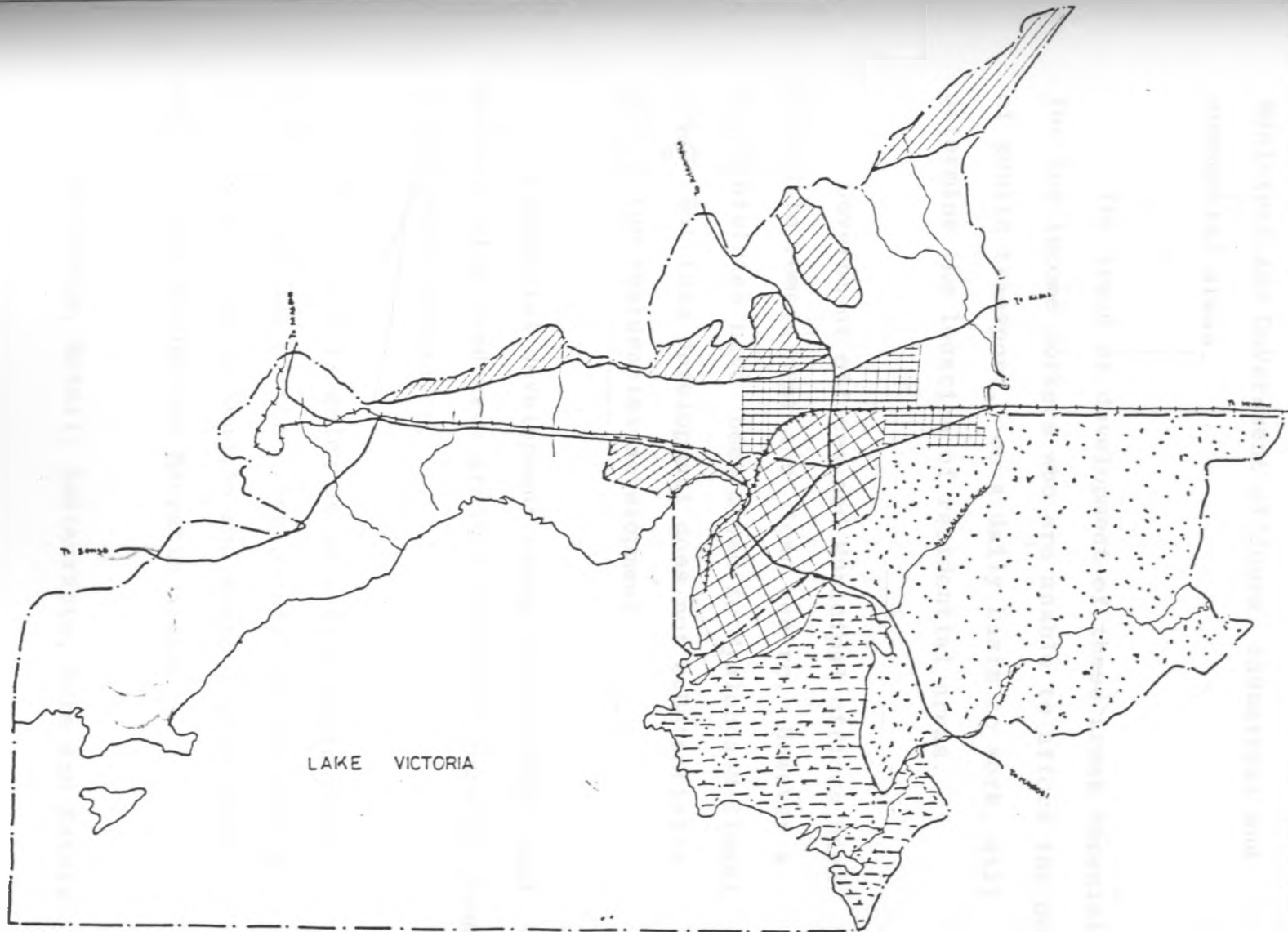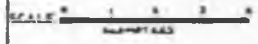
LEGEND

MUNICIPAL BOUNDARY
OLD MUNICIPAL BOUNDARY
ROAD
RAILWAY
RIVER
	BUILT UP AREA
	HILLY AREA
	BLACK COTTON SOIL (LIABLE TO FLOODING)
	SWAMP
	ACQUIRED LAND

LAKE VICTORIA

PLANNING FOR EDUCATION IN

KISUMU MUNICIPALITY

SCALE

SOURCE KISUMU STRUCTURE PLAN 1973

BARRIERS AND CONSTRAINTS TO DEVELOPMENT

MAP 12   M.A. THESIS
D.U.R.P

However to determine the distribution· of these
settlement it is necessary to evaluate the relation
of residential areas and places of work including
Municipal and Government officers, industrial and
commercial areas.

The trend of development of these areas especially
for low income workers who are unable to afford the cost
of public transport, on a daily basis to work, will
determine the location of residential areas.

Government offices and Municipal offices have
tended to remain near the town centre. However a
few Ministries have been moved to Nyalenda-Milimani
area. But this development does not substantially
affect the residential development.

Commercial development along the Kakamega road
and the Kibos road have greatly attracted housing along
these growth corridors.

This trend is going on at such a rapid rate
that by 1986 25% of the urban population was living
in this area called Kondele and Nairobi area which
extends into Mogosi and Manyatta areas.

Wholesale, Retail, Restaurants, Bars and Hotels

which make up most of the major formal employment sector in this Manyatta-Kondele-Migosi-Nairobi area, employs about 8.6% of the working population in Kisumu. However this sector has acted as a stimulant to the informal sector. Thus it is a common sight to find open air garages, vegetable and fruit sellers, fish mongers and such self employment ventures that generate income to the people in the area. This informal employment leads to the growth of the employment sector. This in turn acts as a "pull" factor in-migration to the urban area.

The new migrants are generally unable to find affordable accommodation in the middle or low density residential areas. This leads to the rapid expansion of the high density residential slums. It is necessary to control this development so as to determine provision and distribution of schools.

5.7% of the working population is employed in construction work. Most of the construction work is undertaken in Manyatta and Nairobi area. This area is developing as a mixed density residential area. There are new estates being constructed off the Kakamega road. Middle and high density housing is also being developed off the Kakamega and Kibos roads. To improve this area the World Bank has put up markets,

water points and tarmacked roads. This- has raised the
value of the land and thus the construction of higher
value housing has been stimulated. This area seems to
be developing as a middle income residential area
as the low income people are pushed to areas where the
land values are lower, and site and service schemes
being constructed nearby in Migosi.

The rents of permanent houses are generally
unaffordable for the urban poor. It is necessary that
a policy that caters for such people be initiated.
This would allow them to also enjoy decent housing
and raise their standards of living. It would
discourage squatter settlement and allow for a better
provision of facilities such as chools.

A revision of building by-laws would greatly
improve affordability of housing for the low income
workers who earn less than 1,500/- per month.
These people make up 52% of the workers in the formal
sector of employment. There is also a large number
employed in the informal sector.

Development of industry along the Busia road
and Kibos area is expected to stimulate development in
these areas. They will probably house industrial
workers and the people who provide service to them.

It is however difficult to rate the industrial growth at this juncture because industrial development in Kisumu is subject to several factors which are beyond the scope of this study. But suffice to say that development will probably continue in these areas because the land is level, there is access by road and rail, land values are low and there is provision of other support   infrastructure such as water.

Income distribution was adjusted by the researcher by 20% to take into account the revision of salaries by the Ramtu Commission. The calculation were based on data from the statistical abstract, 1984. Thus the income distribution is given as follows:-

Table 14:

	Income Range	% of Working Population
Low Income	Below 1,499	52
Middle Income	1,500 - 2,999	27
Upper Income	Above 3,000	21

Income Distribution in Kisumu.

The percentage of upper income workers is attributed to the large number of Indian businessmen who run most of the commercial and industrial businesses in the town.

The other category are the top civil servants who work in the provincial offices.

The provincial headquarters function of the Municipality is enhanced by its regional dominance. These large organisations such Cotton Lint and Seed Marketing Board, Lake Basin Development Authority among others have their regional offices in this town.

In the provision of residential housing, incomes determine affordability thus housing developers should construct housing which are within the means of the town's residents.

Residential densities will possibly be higher along the Busia road corridor. Low density housing will continue to expand in the Kanyakwar and Mogosi areas

Medium density housing will be expected to develop alongside the high density areas. Thus in proposing the location of schools, the density of residential areas will play an important role.

5.2   Public Transport in Kisumu

Here the concern is mainly with transport as it relates to the transportation of school children.

At present there is no public transport that
can cater for the school children. The only form of
public transport are saloon cars that carry several
people in the front and back seats and only transport
a small percentage of the population at any given time.

A public transport for school children has to
be frequent, regular and safe. The schools along
the Jomo Kenyatta Highway are located adjacent to the
residential areas where the students live. Students
risk crossing roads several times a day to and from
school. From the police traffic records it was found
that accidents on this road had increased from 11 to
22 between 1985 and 1986.

This road also has a substantial volume of
traffic with about 21 vehicles per minute on both
carriageway. This traffic will continue to increase
as development increases in the town's centre thus
necessitating safety measures.

The conference on Traffic, Transportation and
Urban Planning report (1981) noted that a school
bus is available for a certain period before classes
begin so that the primary goal is to optimise the
route of the bus so as to serve the students best.

It is normally necessary to determine the sequence
of stops as well as the capacity of the bus. One is also
expected to consider the waiting time of the students
at the stop as well as the travelling time and exit
time. At some stops the bus has to turn to continue
and this increases running time.

The distribution of schools has thus to be
planned on the basis of accessibility to public transport.
Apart from the nursery schools which are best located
at the neighbourhood level, primary and secondary
schools tend to be more diverse in their catchment
though attempts are always made at serving the local
population first. It is a fact that when a school
tends to perform well at national examinations, it
attracts people from outside the neighbourhood. These
migrant population normally uses public transportation
so it is necessary to locate a school as near as
possible to a bus stop and vice-versa.

It is important to note that the routes are
mainly for school bus operation though they   could
serve a multiple purpose of ferrying commuters to and
from residential areas,

School bus operations are expected to start
from dawn upto 8,30 then from 12.00 to 2.30 p.m. and
from 4 p.m. to 7 p.m. These are the times when most

children need the transport. The assumption that
has been made is that most of the school bus users are
secondary school students. Assuming that 50% of the
students use public transport then in a neighbourhood
of 5,000 transport for secondary school   students
would need to cater for 630 students.

It must be noted that students get on and off
the bus as it moves along a given route, thus it is
logically assumed that these cancel each other and
thus it is not necessary that different buses for
each neighbourhood be established.

It is necessary to serve as many areas as
economically   possible thus in this study the
population densities has been used to determine
which areas need a greater coverage. In the northern
parts of the Municipality land has already been
acquired for residential development. Thus it is
expected that these areas, though they have a high
density will continue to develop faster than the rest
of the muncipality. The network of buses here would
thus have to be denser to serve the expected population.
To the east the black cotton soil deters any near
future development thus the rest of the bus routes will
be concentrated to the west of the Muncipality where

KISUMU MUNICIPALITY

SCALE

ONYANGO G.M.

PROPOSED SCHOOL BUS ROUTES (SHORT AND LONG TERM)

MAP 13

MA THESIS
D.U.R.P

LEGEND
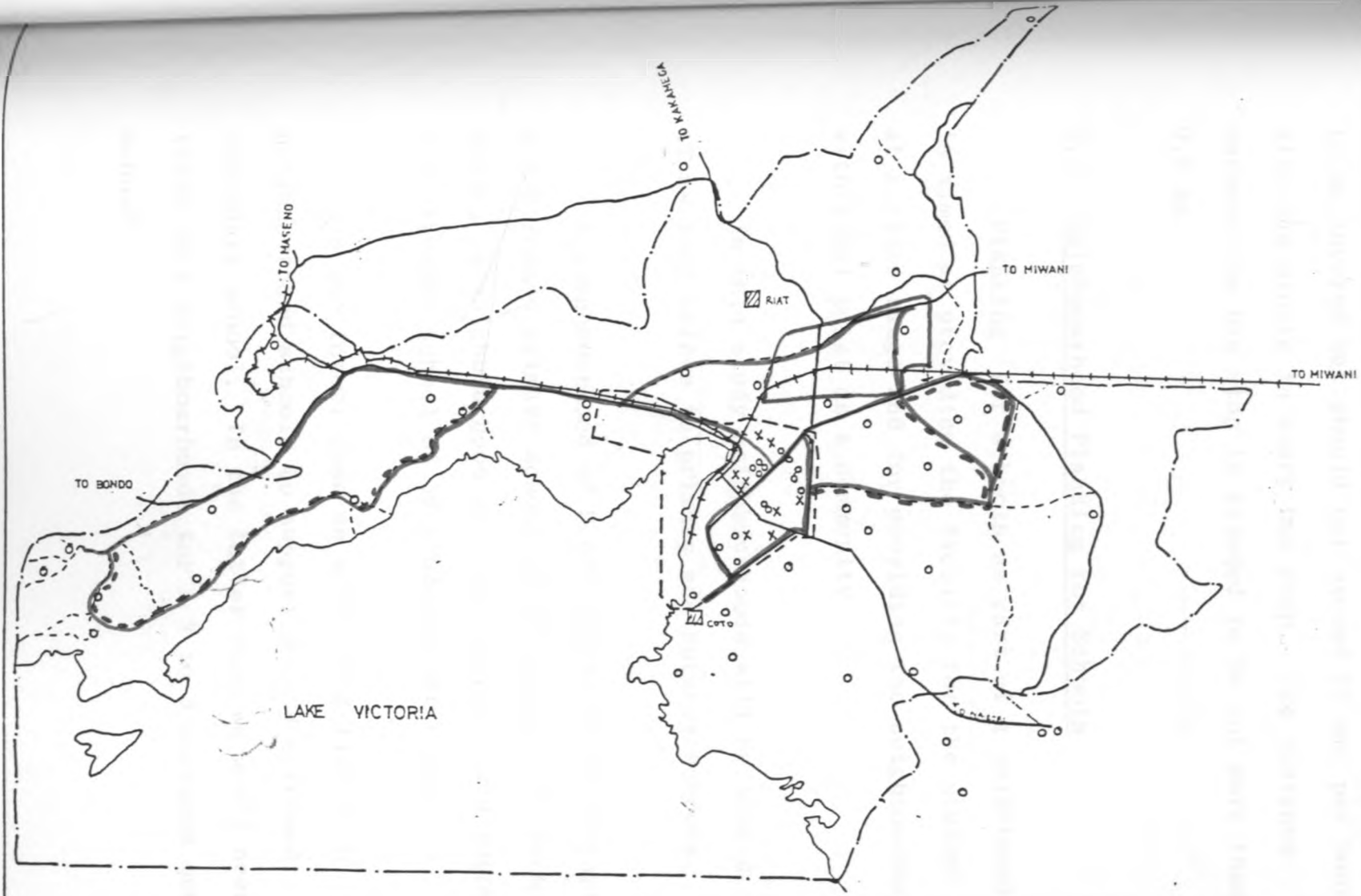
NEW MUNICIPAL BOUNDARY
OLD MUNICIPAL BOUNDARY
TARMACED ROAD
MURRAM ROAD
RAILWAY LINE
PRIMARY SCHOOL
SECONDARY SCHOOL
RESIDENTIAL DEVEL-LOPMENT(SHORT TERM)
MAIN BUS ROUTES
POSSIBLE ROUTE EXTE-NSIONS

TO KAKAMEGA

TO MASENO

TO MIWANI

TO MIWANI

TO BONDO

RIAT

LAKE VICTORIA

COTO

N

more long term development is expected. Each route
should have a running time of 30 minutes. The speed
of the bus will then be determined by the distance
to be covered but should not exceed 60 km. per hour
with one minute in every bus stop. The distance
between the bus stop is assumed to be not more than
0.5 km.

5.3   Neighbourhood Planning for Schools

Planning for schools as part of a neighbourhood
is aimed at providing the facility for the student
at a close range and for providing the neighbourhood
with focal point as a community.

In this study neighbourhoods will be looked
at as they relate to primary and nursery schools.

A neighbourhood of 5,000 people would support
a 3 streamed primary school of 47 students in each
class. A neighbourhood of 7,000 people would support
a 4 streamed school of 54 students per class.

In the former case we would need five such
neighbourhood schools to support 2 to 3 streamed
secondary school. In the latter case we would need
three such neighbourhoods for a 2 to 3 streamed secondary
school.

The different neighbourhood sizes can be used with a 7,000 people neighbourhood for high densities and 5,000 people neighbourhood for medium and low densities. This will cater for the distance that students have to walk to the school. A high density residential development will also imply that housing is more compact and thus the unity is not lost as would be the case in low and medium density housing with an equal size of neighbourhood.

Figure 3   gives indications on how such a neighbourhood would be designed in the areas which are still unbuilt. This is however only a guideline and different formats can be applied depending on the location. In an area with a density of 130 people per hectare. A school located at the centre of a neighbourhood would ensure that no student walks for more than 0.5 kilometre.

Providing one school for less than 5,000 people would result in too much land being used for schools and this in effect would inflate the cost of development. Provision of schools should be undertaken in such a way that it allows for future expansion as the population densities rise.

Fig 2:

5000 Pop. NEIGHBOURHOOD

NURSURY SCHOOL

NURSURY SCHOOL

NURSURY SCHOOL

NEIGHBOURHOOD SHOPS

3 STREAM PRIMARY SCHOOL

4 STREAM SECONDRY SCHOOL

NURSURY SCHOOL

NURSURY SCHOOL

NURSURY SCHOOL

NEIGHBOURHOOD SHOPS

NURSURY SCHOOL

NURSURY SCHOOL

NURSURY SCHOOL

4 STREAM PRIMARY SCHOOL

NURSURY SCHOOL

7000 Pop. NEIGHBOURHOOD
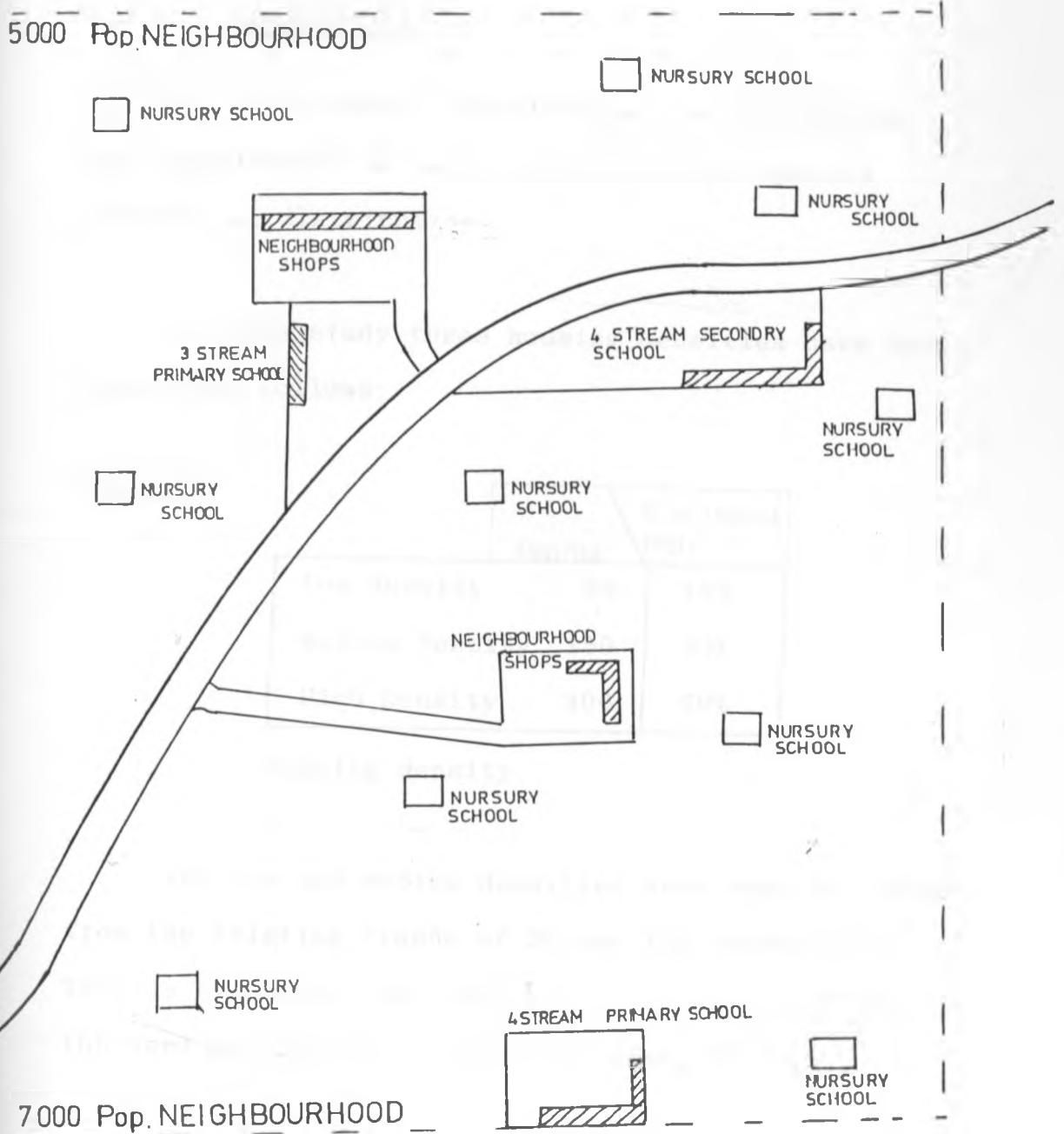
Possible Neighbourhood Design.

5.4   Land Requirement

5.4.1.   Residential:

It is necessary to determine the residential land requirement so as to determine the expected residential distribution.

In this study three housing densities have been adopted as follows:

Table 15

	Psn/ha	% of total pop.
Low density	50	10%
Medium Density	150	30%
High Density	300	60%

Housing density

The low and medium densities have been increased from the existing trends of 30 and 130 respectively. This is because of the high costs of urban land and the need to conserve as much of it as possible.

The land requirement for housing could take the trend below:

Table 16 (a)

Density	Persons per ha.	Population 1991	Land Requirement
Low	50	34,777	695.5
Medium	150	104,330	695.5
High	300	308,661	1,028.9
			2,419.9

Table 16 (b)

Density	Persons per ha.	Population 2001	Land Requirement
Low	50	62,928	1,258.56
Medium	150	188,784	1,258.56
High	300	377,568	1,258.56
			3,775.68

Land requirement for housing (in ha.)

5.4.2 Commercial, Industrial and Public Purpose

In every residential neighbourhood not less
than 10% of the land shall be left for public purpose.
Commercial land is difficult to quantify. However
every neighbourhood should reserve 10% of land for
shopping facilities. However in the Kondele area a
commercial centre is growing rapidly. With the
expected relocation of the Country bus station to
this area activities are expected to increase

substantially. This area would thus be best developed
as a district centre since it has already an in-built
mechanism to grow. Other districts centres could be
established as the town grows to reduce congestion
at the town centre.

Industrial land has been reserved in the Kibos
area and Otonglo area. These areas will attract
residential housing as they develop. Thus in allocation
of the residential land it is imperative that they
be distributed near the industrial area.

In the short term it is necessary to determine
which areas are most likely to be required as industrial
land. The Municipal Council has acquired land near
the Kibos area. It would therefore be much easier
for a developer to set up industry in this area. The
land is flat and has good transport network including
a railway line. Land near it is also being developed
for residential housing thus a nearby supply of labour.
Thus land for industry should be allocated if need be
in this area.

5.4.3. Nursery Schools

It is the trend that as people work longer
their incomes level increase thus they move to high
income low density residential areas. Most of the
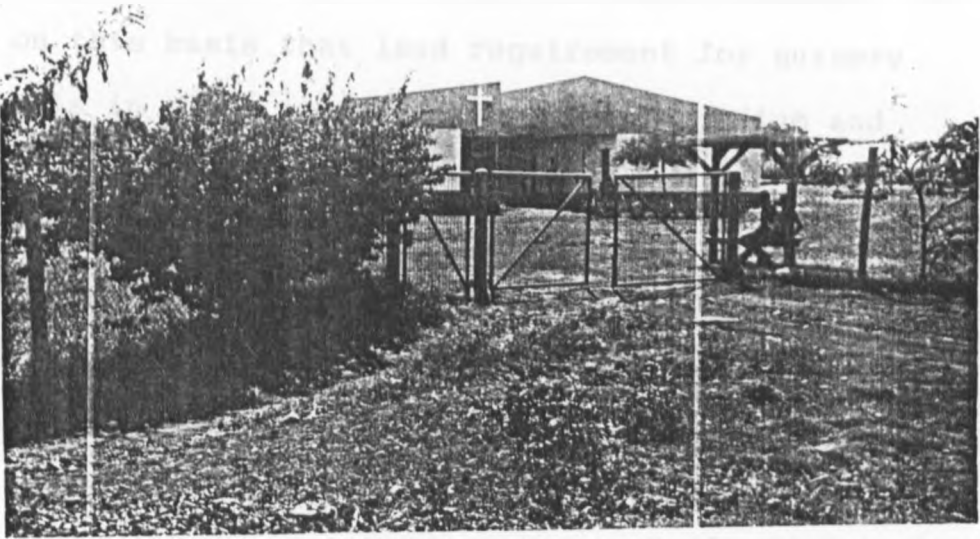
Plate 5:   This Church Nursery is one of the few
           Nursery Schools that has sufficient land
           for development.
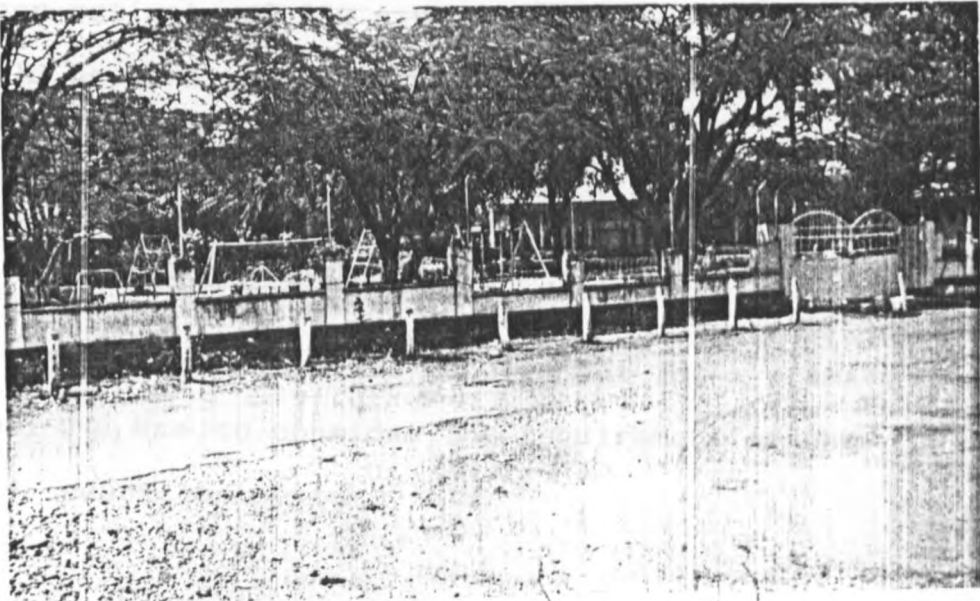
Plate 6:   Aga Khan Nursery: A Private Nursery School
           of good quality.

time they tend not to have children of nursery going age. Only a small percentage have such children. It is on this basis that land requirement for nursery schools in these areas is less than in medium and high density residential areas.

It is expected that 2 nursery schools per 2,500 people would be adequate. This would require land- for an estimated 125 students per nursery school. The Town Planning Handbook (1971) has estimated that each student requires 0.00304 ha. ($30.4m^2$). Therefore the total land requirement for a nursery schools each with a population of 125 pupils is 0.38 ha.-

To cater for contigencies such as rapid increase in population in the medium and high density areas the larger estimate of 250 students for 2 nursery schools should be used thus a total land requirement of 0.7 ha. (0.38 ha. per school).

5.4.4. Primary Schools

In determining land requirement for a primary school one has to consider the requirement of the 8.4.4. education system.

In the syllabus students are expected to learn Agriculture and Workshops and laboratories are also

needed for practical lessons. In this land estimate
it is assumed that a school has 3 streams.

Savage (1965) established that $2.6m^2$ is reasonably
adequate per student in an elementary laboratory. One
can therefore approximate that one would need a laboratory
or workshop of $130m^2$ for 50 students.

Each class in the upper primary is expected to
use the workshop for three periods a week. The same
case applies to laboratories. The total number of
periods required for each facility is 36 hours per
week. There are 40 periods a week each lasting
40 minutes. Therefore we see that one laboratory and
one workshop would be adequate for a 3 stream primary
school.

The increase in the school population due to
Standard 8 classes and preprimary classes means that
that each school will require more land for school
buildings.

One solution would be to build storied classrooms
or alternatively classes could be built compactly
as shown by the diagram below and plates 7 and 8
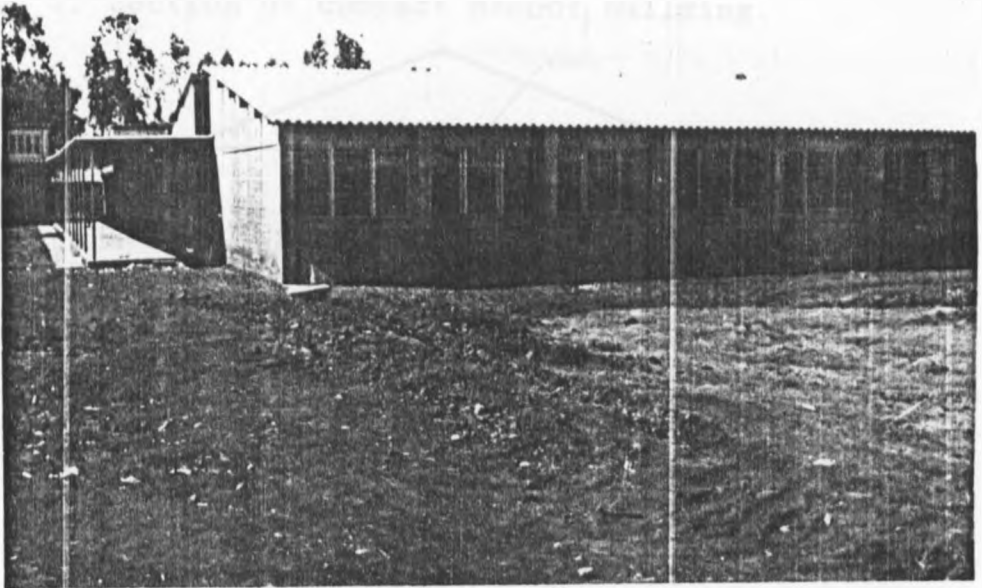
Plate 7: Compact arrangement of school building
          in Kisumu.

Plate 8: Arina Primary: Note the storeyed building
          in the centre background.

Fig. 3. Section of compact school building.
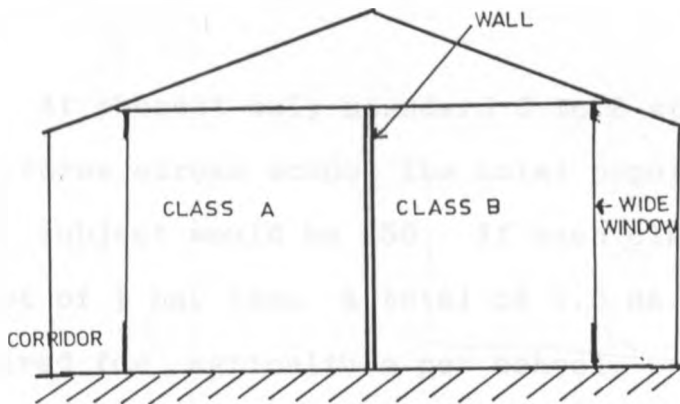
These alternatives are appropriate for schools in built up areas where land is already limited.

It is estimated that in a well arranged class which is strictly for instructions, each student needs some $2.5m^2$ space (Perkins and Cocking, 1951). In a class of 50 students we would need $125m^2$ for a classroom. In a three streamed school the total area needed for classrooms would be $3,375m^2$. If storeyed classrooms were built the space required would be $1,687.5m^2$.

Each school is estimated to require 34 teachers at a ratio of 1 teacher per 40 students. If each teacher had $2.5m^2$ for actual writing and the total staff need a room for conference then the staff room would have to be twice the size of a classroom ($250m^2$). However if the staffroom and offices were built as part of the storeyed blocks then there

would be no need for extra space.

At present only standard 6 to 8 study agriculture.
In a three stream school the total population studying
this subject would be 450. If each class was given
a plot of ½ ha. then a total of 1.5 ha. would be
required for agriculture per school.

With a plot coverage of 60% the buildings
would cover a total of $6,473m^2$ assuming no storied
building. But with storied buildings this figure
would be reduced to $3,243m^2$.

The policy on education aims at developing the
physical and moral well being of a child. In this
respect sufficient space should be left for recreation.
To reduce the cost of construction and acquisition of
land it would be possible to construct 3 classrooms
with panel doors which could be opened to be used as
an assembly hall.

The playing field caters for games like football,
netball, volleyball and athletics. To reduce wastage
of land these playing grounds ought to be arranged
as compactly as possible. Below is a schematic
representation of a possible arrangement.

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Fig. 4:
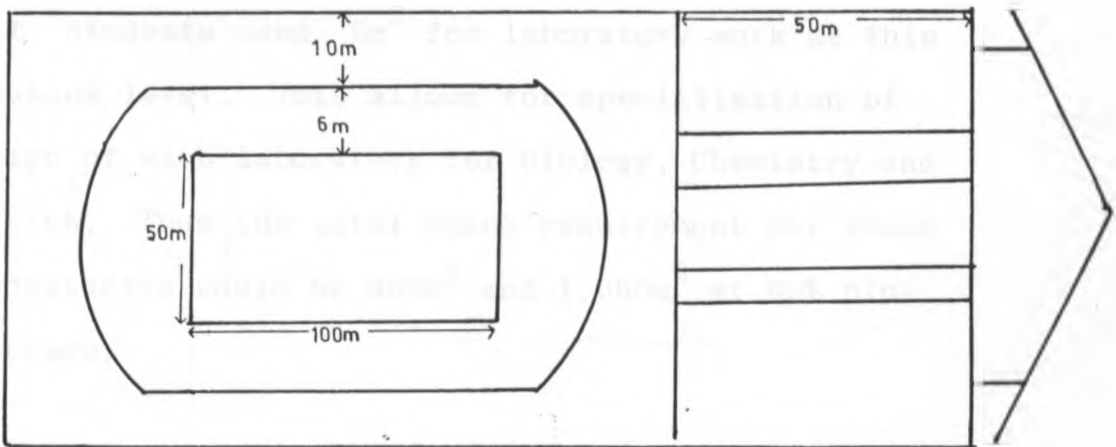
Possible Playfield Layout

Thus a minimum field of $20,000m^2$ (2 hectares) is required if all the above games are to be accommodated. However an extra 1 ha. should be added for other possible games such as lawn tennis, hockey. Thus the total land requirement for a coonventional school would be 5.2 ha. for non-storied and 4.8 ha. for storied buildings.

5.4.5 Secondary Schools

In a four streamed school, there would be a total of 16 classrooms requiring a total of $1,600m^2$ since each student requires $2.5m^2$. If a single storied building was constructed then $800m^2$ would be required. Giving a 60% plot coverage then $2,667.0m^2$ would be required for conventional classroom and $1,337m^2$ for storied classroom.

Savage (1965) Perkin and Cockin (1951) estimate that students need $5m^2$ for laboratory work at this advanced level. This allows for specialisation of design of each laboratory for Biology, Chemistry and Physics. Thus the total space requirement for these laboratories would be $600m^2$ and $1,000m^2$ at 60% plot coverage.

Metal and woodwork laboratories also have to be built since at this higher level the work is more detailed, more space would be required for each student. A home science laboratory is also needed for training students in the basics of home-science.

Not all students take these subjects so provision of these facilities should assume that part of the class takes up each of the subjects.

Thus a workshop for either woodwork, home-science or metal work, allowing for more circulation of space and demonstration area would be constructed to accommodate 30 students.

Perkins and Cocking (1951) estimate that a workshop of $136m^2$ would satisfy the above requirements Thus three laboratories for woodwork, metalwork and home-science would need a total of $680m^2$ at 60% plot coverage.

It is estimated by Perkins and Cocking (1951) that an administration block should not take more than 10% of the classroom area. Thus an administration block would require $267m^2$.,

The same amount of land for games applies here as in primary school. Agriculture at this level is optional. If 60% of the students were to opt for agriculture then 2.4 ha. of land would be needed assuming each student has a $50m^2$ plot. This allows for both crop and animal husbandry. The total land requirement per school would therefore be 6 ha. and 5.6 ha. with storied buildings.

5.4.6 Youth Polytechnics

A Youth polytechnic with a population of 300 students would need 6 workshops for 50 students each. It is estimated that a workshop for 50 students each, assuming each student has $5m^2$ space, would cover $250m^2$. Six such workshops would need $1,500m^2$.

If the administration block occupies 10% of the total workshop space one would require $150m^2$ for administration.

Youth polytechnics, like any other education institution requires playground, assuming that there will be no great expansion in the future of youth polytechnics and since they have a relatively smaller population than schools, it would be appropriate of 2.5 ha. were reserved for playing grounds.

Thus the total land requirement for a youth polytechnic would be 3.8 ha. allowing 1 ha. for future expansion.

5.4.7   Boarding Facilities

This is determined by the number- of students who will be expected to a board. The size of the dormitory also depends on the bed type used by the school i.e. decker beds or single beds. Therefore each school has to determine the capacity.

However a $7m^2$ cubicle can accommodate 2 to 4 students depending on thebed-type. If a storeyed dormitory is built then less space will be occupied by the dormitory facilities. Thus we would need $2,800m^2$ as maximum space for sleeping excluding the toilet and dining facilities. However a 3 storeyed building would reduce this space to $933m^2$. At 60% coverage we would need $4,666m^2$ for a conventional dorm

and 1,555m^2 for storeyed dorm. To allow for dining facilities, matrons houses, and other services this area should be expanded to 1 ha.

Staff housing is normally taken as part of the residential neighbourhood but where necessary staff houses should cover · 1,400m^2 per house. This allows for cheaper provision of facilities and services. Houses can be built as semi-detached or storied to conserve land.

Since staff members in a boarding school act as surrogate parents to students it is necessary that staff housing be built in a boarding school as part of the schools development.

5.4.8   Colleges

These are function specific and in determining the land requirement, it is necessary that a detailed curriculum be provided for evaluating the requirements. Each is a planning project in its own right.

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CHAPTER SIX

CONCLUSION AND RECOMMENDATION

In the whole study, the strategy was to highlight issues of supply and demand of education facilities and how they relate to residential land use, urban growth and population.

Where it was not possible to get concrete data the researcher gave general guidelines in so far as he felt that they were relevant in forwarding a case for education planning.

Attempts were made to concentrate on land use planning but at the same time incorporate policy decisions in so far as they affect the land use planning.

Provision of schools will have to be undertaken in stages as the town grows. For nursery schools this is a possible strategy.

Table 17:

Year	No. of Nursery school	Total No. of streams	Total students eligible per 2500 p	No. of students per stream
1991	2	3	125	42
2001	2	6	250	42

Provision of Nursery Schools: Short and Long Term.

If the policy of universal education at primary level by 2000 A.D is to be achieved then the council must develop schools at an equal rate with the increase in demand.

Each primary school should have three streams of classes, a home science laboratory and a workshop. The streams of classes could be increased to four as the school grows to cater for a neighbourhood of 7000 people.

30% of the students who pass K.C.P.E. have to be absorbed in secondary schools. Below are the possible strategy of school structure depending on the neighbourhood. The figures are for a population of 25,000 people.

Table 18:

Students per class	No. of classes required	No. of schools 2 stream	3 stream
50	22	3	2
45	25	3	2

School type strategies.

The emphasis of basic education in primary school creates a cadre of primary graduate who need

further training to develop their rudimentary skaills.

Thus Youth polytechnics could be established inthe Manyatta and Nyalenda areas this is because these areas have over 50% of the urban population and they are generally poor and unable to pay the exorbitant fees needed for private secondary schools. The informal sector also thrives in these areas and would thus be developed. Recurrent expenditure can be reduce if the students are encouraged to construct and repair furniture and buildings.

Staff development should be seen as a core issue in education planning thus the need to establish a Teacher Training College. This will also go a long way in ensuring that the Municipality is self sufficient. It will also bolster it's role as a regional centre. Thus a T.T.C. producing 334 teacher per year.

Establishment of a University or diploma colleges in Kisumu is highly probable due to regional and strategic location. With the renewal of East African Co-operation the town will continue to expand thus exerting a greater pull for developers.

To locate a University or a College it is necessary to consider it's future growth. Thus a possible area will be in the areas to the west of the town which are flat, of good stable soil and has little chance of being surrounded by high density commercial or industrial development. The area is also easily accessible by road.

Bus routes should be aligned to serve these areas including areas which have secondary schools to allow for a more equal distribution of these facilities ensuring that safety measures such as guard rails are provided where necessary for students and public safety.

Schools should be provided for neighbourhoods of 7,000 for medium and high density areas and 5,000 people neighbourhood in low density areas. This would ensure that students do not walk for more than half a kilometre.

Land requirement for education institution by 2001 A.D. will be as follows:

Table 19:

Institution Type	Total eligible pop.	% intake	Pop. per institution	No. of institution	Area per Institution (in ha)		Total Area requirement (in ha)	
					Conventional	Storeyed	Conventional	Storeyed
Nursery Sch.	72,367	100	250	289	0.38	–	109.8	
Pri-Sch.Day	149,022	90	1,960	76	5.2	4.8	395.2	364.8
" Boarding	149,022	90	1,960	76	6.2	5.8	471.2	440.8
Sec. Day	26,837	30	800	34	6	5.6	204	190.4
" Boarding	26,620	30	800	34	7	6.6	238	224.4
Youth Poly.	62,620		300	2	3.8	–		7.6
Staff Housing				20	0.14	–		2.8

Education Land requirement 2000 A.D.

The following are guidelines which may be
adopted by the Municipal Council to guide them in
implementation of programmes and development of
edudation institutions.

1.   Parents should be made to share the recurrent
          and development cost of schools. But it
          should not be mandatory that parents construct
          new schools since this will force many parents
          not to take their children to school due to
          the high cost of such development, in
          fact higher than what parents used to pay as
          school fees before abilition of the fees.
          The council should thus adopt strategies that
          take cogniscese of the poor parents.

2.   Land should be reserved for development of
          boarding facilities at secondary school level
          in areas where residential densities will be
          low for the next decade to cater for students
          who are unable to travel daily to such schools.
          Since boarding schools are expensive to construct
          parents should be involved since their children
          will be the beneficiaries of such institution.

3.   Staff housing should be provided for teachers especially in boarding schools to allow the staff to devote more time to students as they act as surrogate parents rather than rushing off to their houses after classes and houses which may be quite some distance from school.

4.   Due to the high cost of land acquitition in urban areas and the scarcity of such land, it is pragmatic that such land be conserved as much as possible. Measures to achieve this include construction of storeyed buildings; compact buildings should be built where possible. Comprehensive schools also conserve land and provide many facilities at low costs. Students also get a sense of belongings since they continue learning in the same school upto fourth form. Development cost is also shared between many more parents thus easing the the burden.

To reduce cost of development and conserve land the Municipal Council could therefore emphasise storeyed buildings and comprehensive schools where possible. Map 14 shows the short-term (1986-1991) strategy for development in the Municipality.

Each neighbourhood has a population of between 5,000 and 7,000 people. The table below shows the distribution of these facilities per neighbourhood.

Table 20:

Pop. Catchment	Number of Facilities		
	Nursery school	Primary School	Secondary School
5,000	4	1 (3 stream)	
7,000	6	1 (4 streams)	1 (4 strems)
12,500	10	3 (3 streams)	2 (4 streams)
25,000	20	5 (streams)	5 (4 streams)

A neighbourhood should have land for commercial facilities, public purpose and schools, therefore for the neighbourhoods proposed the following land requirements would be necessary assuming commercial land took 10% and public purposes 20%.

Table 21:

Areas in hectare

	Neighbour-hood pop.	Residen-tial	School	Commercial	Public purpose	Total
Low Density	5,000	100	6.72	13.34	26. 68	146.74
Medium Density	7,000	46.7	14.48	6.77	13.54	74.49
High Density	7,000	23.3	14.48	3.85	7.70	42.33

N.B. Area given for primary school is for a day school,
       Total land requirement in neighbourhood.

Thus implementation of neighbourhood ought to be

undertaken as indicated above to ensure that nursery

and primary schools are made part of the neighbourhood.

Secondary school can be located in a residential area

with a catchment population of 7,000 and thus in such

a situation 7.0 hectares should be added to the

neighbourhood, as indicated above.

        All in all planning at all levels must strive

to be comprehensive.
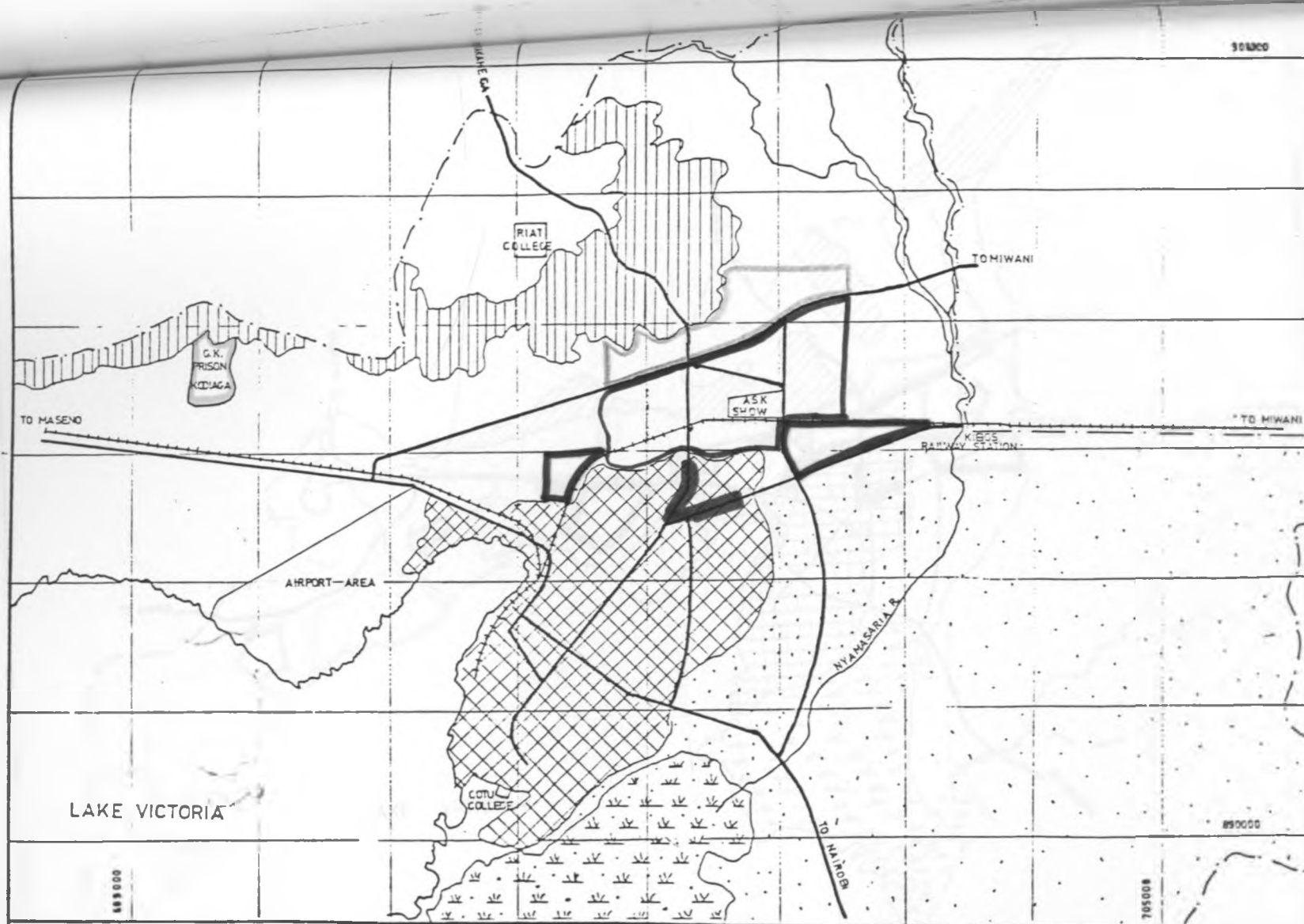
LEGEND

	MUNICIPAL BOUNDARY
	RAILWAY LINE
	ROAD
	RIVER
	STEEP SLOPES
	BUILT UP AREA
	SWAMP
	BLACK COTTON SOIL
	RESIDENTIAL LOW DENSITY
	HIGH & MEDIUM DENSITY
	COMMERCIAL
	INDUSTRIAL
	PUBLIC PURPOSE

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RIAT COLLEGE

G.K. PRISON KODIAGA

TO MIWANI

TO MASENO

ASK SHOW

TO MIWANI

KISUS RAILWAY STATION

AIRPORT—AREA

NYAMASARIA R.

TO NAIROBI

LAKE VICTORIA

COTU COLLEGE

890000

PLANNING FOR EDUCATION IN
KISUMU MUNICIPALITY

SCALE

N

ONYANGO G.H

SHORT TERM DEVELOPMENT STRATEGY

MAP 14

M.A. THESIS
J.U.R.P
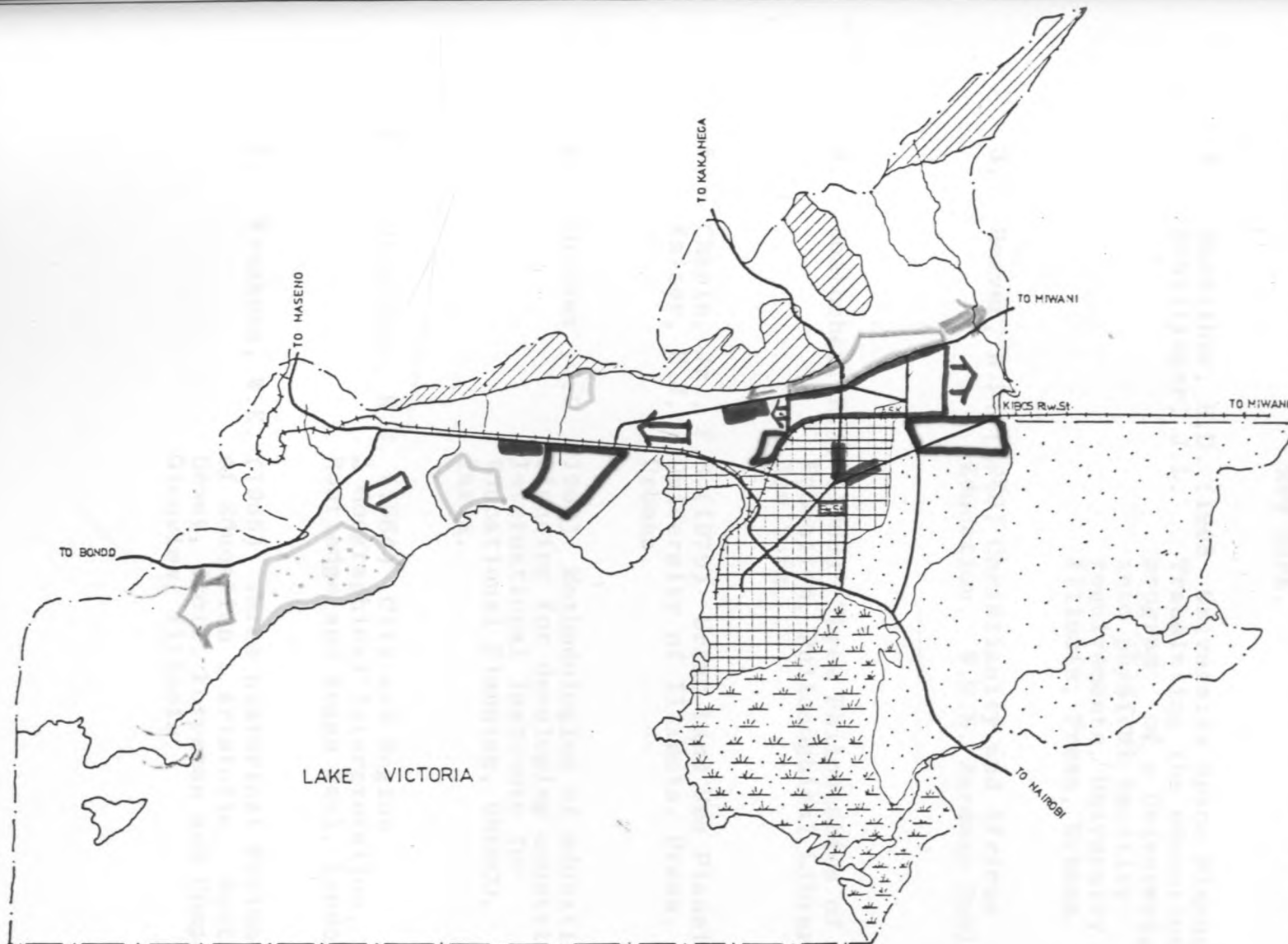
LEGEND

— ·· — ·· —	MUNICIPAL BOUNDARY
———	ROAD
—+—+—+—	RAILWAY LINE
~~	RIVER
/////	HILLY AREAS
▦	BUILT UP AREA
▦	SWAMP
▦	BLACK COTTON SOIL (LIABLE TO FLOODING)
▦	LOW DENSITY RESIDENTIAL
▭	MEDIUM & HIGH DENSITY RESIDENTIAL
▬	COMMERCIAL
▭	INDUSTRIAL
▭	PUBLIC PURPOSE
▭	FUTURE BUSSTOP SITE
▭	POSSIBLE SITE FOR COLLEGE

TO MASENO

TO KAKAMEGA

TO MIWANI

KIBOS Rlw.St.

TO MIWANI

TO BONDO

LAKE VICTORIA

TO NAIROBI

130

PLANNING FOR EDUCATION IN

KISUMU MUNICIPALITY

SCALE

△
N

ONYANGO G.M

LONG TERM DEVELOPMENT STRATEGY

MAP 15

M.A. THESIS
D.U.R.P

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Appendix 1

Household Questionnaire

1. Questionnaire No. --

2. Estate ---

3. Interviewer --

4. Name of Respondent ---

5. Relationship to Household Head -----------------------------

6. Total Number in Household.

Relationship to Household Head	Age	Sex	School being attended Name and Location

8.   How far is the nearest nursery school ----------------

      How far is the nearest primary school ----------------

      How far is the nearest secondary school ----------------

9.   Place of Origin of Head of Household:

      a)   Kisumu Municipality ----------------------------

      b)   Kisumu District ----------------------------------

      c)   Siaya District ------------------------------------

      d)   South Nyanza District -----------------------------

      e)   Kisii District ------------------------------------

      f)   Western Province ----------------------------------

      g)   Others (specify) ----------------------------------

10. What are the reasons why you live in Kisumu ----------

11) How many rooms are occupied by your family ----------

12) What is the average size of the rooms ----------------

Appendix 2

Traffic Count Schedule (Jomo Kenyatta Highway)

Time: From -----------   To -------------------------------

Buses	Trucks	Matatus	Cars	Others specify)