

PROJECTED PRIMARY SCHOOL POPULATION OF NAIROBI PROVINCE:

1980 - 2000. / /

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ONGECHE OWUOR.

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT
FOR THE DEGREE OF MASTER OF ARTS (POPULATION STUDIES) IN THE
UNIVERSITY OF NAIROBI.



JUNE 1989.

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DECLARATION.

This thesis is my original work and to the best of my knowledge it has not been presented for a degree in any other university.

Signature.



ONGECHE, O.

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

Signature.



Dr. A.B.C. Óchóla-Ayayo

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PREFACE.

This study has been undertaken in order to have a clear picture of the future primary school population so as to enable policy makers plan well in advance for the educational needs for the future primary school population.

I wish to express my gratitude to the help of numerous kinds which was received from many members of staff, and especially the Director of the Population Studies and Research Institute, University of Nairobi. Their meritorious assistance in creating this thesis and the successful completion of the course for which it is part of, deserves mention, to them, I am sincerely thankful.

For more specific assistance, practical, personal and intellectual, I want to thank supervisor Prof. Oucho, J.O. whose invaluable support steered this work to its final successful completion.

I would like to record my appreciation to the staff of Central Bureau of Statistic for assistance rendered during the research.

ABSTRACT

This thesis has mainly dealt with the projection of population in Nairobi Province by division. It also dealt with population projection of primarily school age population mainly of ages (6 - 13 years), this projection was also done by division, though an attempt was also done to project by wards, the thesis has examined the future primary school age population and its implication. It is most likely to have on the education and its provision in Nairobi Province, namely:- Enrolment and wastages.

The techniques used for projection is the intercensal growth rate. The data used is the 1969 and 1979 censuses.

The intercensal growth rate is fitted into an exponential growth model, and since the primary school age population is required and the census data is given in five years age group, it becomes necessary to use interpolation coefficients based on the sprague multipliers to break the five year age group in single years (6 - 13 years).

For the enrolment and wastage, the enrolment ratio method and a cohort survival analysis is done.

With the present mortality, fertility and migration trends the primary school population will be increasing fast into the year 2000.

CHAPTER ONE.

1:0 GENERAL INTRODUCTION

1.1 Background to the study.

Education occupies an important place in most national development plans. It is considered an important sector in that it supplies the trained manpower and is usually regarded as a prerequisite for the accomplishment of other development goals. Education is also seen as the only sector through whose activities, national identity and national goals and aspirations are given meaning and reality among the people. As a result of this, its share of the gross national product (GNP) and the national budget has tended to be on the increase worldwide, especially in student enrollments and sharp increases in the proportion of children eligible for school have been observed.

The sharp increases in the school - age children can be attributed to various demographic factors. In Kenya where fertility is high and does not seem to be falling, resulting in a high rate of population growth of about 3.8% per annum, greater increase of school age children is expected. This is due to high levels of fertility estimated as 8.1 using total fertility rate as a measure. On the other hand is marked decline in mortality levels which can be attributed to improved medical technology and its availability to the majority of the population coupled with improved nutrition, more children have increased chances of surviving. On studying an urban situation, attention must be drawn to the rural - urban migration which contributes enormously to the increase of population. The majority of rural - urban migrants, previous studies have confirmed, mention education of their children as one of the determinants of their move. It is against this background that study of the effect of population

growth on education is studied.

1:2 STATEMENT OF THE PROBLEM.

Nairobi, being the capital of Kenya and the centre of most socio - economic activities, has attracted a big population through in - migration from rural areas, especially those within 15 - 49 age bracket. It is within this age group that a sizeable proportion constitutes school age population, this situation creates a problem of coping with the increasing school age population, since there will ensue an imbalance between primary school age population and availability and distribution of educational facilities. The situation leads to wastage due to non - attendance of school by some children, leading to retardation, repetition, drop - out and eventually enrolment problems.

It is a well know fact that not all children of the school age population at any particular year in Nairobi are enrolled in the school when they are supposed to, and this is due to one reason or the other. Again not all enrolled in standard one complete the primary level of education cycle within the prescribed minimum period of 7 years prior to 1985 and there after 8 years. Some of the children drop - out before the completion of the cycle and some repeat one or more classes before either dropping out or completing the last grade of the cycle successfully.

The government's aim of achieving universal primary education, coupled with a rapid population growth has resulted in a persistent high rate of school enrolment and this has direct effect on the high rate of population change and its effect on the future primary school enrolment in the city.

Education planning in Kenya is currently receiving a lot of attention from mathematical statisticians, educational scholars, planners and administrators, and very recently demographers. The mathematical statisticians use a stochastic approach, the education scholar, planners and administrators are mainly

concerned with the cause -effect approach and the demographers use the deterministic approach with a lot of emphasis on the

contribution of different schedules of fertility, mortality, and migration. In all these cases information is sought on the past, current and future trends of school age population, the proportion of the school going age population, the requirements such as facilities and teachers.

It's hoped that the study will use the existing data and demographic techniques to provide information on the estimated number and ratios of enrollments and assessment of wastage through drop - out and repeater to the planners and policy makers, to enable adequate financing of educational facilities planned.

1:3 OBJECTIVES.

The major objectives of this study are

- (a) To examine the primary school enrolment patterns and trends.
- (b) To compare the enrolment by age with the projected school going population 6 - 13 vis-a-vis the demand for and supply of education.
- (c) To identify primary school wastage through failures drop - outs and repetitions.
- (d) To examine the distribution of primary schools vis-a-vis the school age population.
- (f) To estimate the future school age population.

1.4 JUSTIFICATION OF THE STUDY.

The purpose of the study is to examine the patterns and trends of the primary school age population, its future growth and the probable implications it is bound to have on education in Nairobi City. It is expected that the study would help educational policy makers to make more cognizance of these factors affecting provision of education in order to improve educational services. The other significance is that it will analyses the degree of association and direction between educational and demographic variables.

Most of the studies in the area of population and education have generally been directed towards planning and administration of education. The study will also permit comparison of the school-age population with that of school going population in order to expose the situation to planners and policy makers.

School population projection by the World Bank (1979), CBS (1978/79), PSRI (1980) are based on various assumptions regarding changes in mortality and fertility. The present study uses the

component method which accommodates all the three dynamics of population without recourse to very many assumptions. School lifetables are used in projection and wastage, something that is lacking in previous studies.

Education administrators and planners require a simple, clear, and easily interpreted data. The present study is likely to make the work of the education planners easier as it does not involve complex manipulation, clear and elaborate analysis of data concerning future school enrollments and an assessment of the wastage in schools will help the planners to formulate policies that will help to alienate the problem of congestion in classrooms as correspondingly more classrooms will be planned for. Other requirements such as training and the required number of teachers and provision of school equipment may be planned accordingly.

1:5 SCOPE AND LIMITATION

The major concern of the study is to investigate the effect of population growth on school enrolment. Detailed analysis will be done for fertility, mortality and migration trends. Nairobi City Commission, Ministry of Education annual reports and a field survey will give additional data. Analysis of enrolment pattern and the distribution of primary education facilities will be done in relation to school - age and school going population. The study is limited to Nairobi Province only.

For various reasons the study is limited to primary education. The first reason is that while the aim of most developing countries including Kenya is to arrive sooner or later at universal primary education, access to secondary education may be limited. Because of this possible limitation of access to secondary education, the full effect of population growth is not felt at secondary level. The increase in secondary enrolment is more dependent on the population.

The third reason is that given the age of entry into

secondary education and the duration of secondary schooling, any change in the present population trend such as a fall in

fertility would take effect on secondary enrolment only in 18 - 20 years time.

1:6 LITERATURE REVIEW

Adams and Bjork (1969) emphasized economics of education,

but merely mentioned demographic aspects in passing. In the role of education they contrasted the developing countries and the developed countries' problems of education. Issues of improving quality and quantity are discussed, though they do not specify how rapid population growth rate affects the development of education.

In the present study demographic aspects have been studied, especially the estimation of mortality and fertility situation as well as migration.

Abela (1971) emphasizes the need for planning for the provision of educational institutions; long term forecast of expected school - age population size, population density in different regions, expected number of classes and class sizes.

He concludes that the growth of urban population is very rapid and has inescapable consequences for the distribution of schools, he deals with the problem of urbanization and distribution, but he is somehow not very clear on the consequences of rapid urban population growth on the provision of schools.

Muhsam (1971) is concerned with the dilemma the planners are confronted with in trying to satisfy both social and manpower demand for education, under situation of limited resources. The developing countries cannot meet both demand for education because of high fertility, declining mortality hence broad based population structure.

Chau (1972) has emphasized the importance of population

expansion in contributing towards increased educational cost. He carried out studies in Ceylon, Colombia, Tanzania, and Tunisia, and recognizes that much effort is needed to improve education under conditions of rapid population growth. He

asserts that a slow down in the growth rate of the young population group combined with an increase in population of working age would diminish the financial burden of schooling and encourage the establishment of universal primary education.

Callaway (1973) argues that it is not "over population" which causes the difficulties in providing schools for today's children rather, it is the recent high rate of population growth against the background of rural under-development. He recognizes the uneven spread of population in Africa with large concentration in urban centers, pointing out the demographic elements of population size, its variations, in density and composition, which obviously affect the expansion and costs of education.

Ominde (1966) analyses the structure of education in Kenya and cautions the educational planner on the continued burden of illiteracy resulting from rising birth rates which leads to a crisis in the primary education.

Heisel, (1966) explores some of the implications of demographic trends for educational needs in a developing society like Kenya. He points out that the combined efforts of fertility, mortality and migration have produced a very young average age in Kenya and that the economy is therefore confronted with heavy demand for constructing new educational institution in the face of competing demands for scarce capital.

Cameron (1970) argues that some form of educational planning both short and long term is inherent in any educational system and this, he adds, involves projection of growth and development with respect to enrolment rates, other school materials plus the finance required all of which are related to population growth.

Mech (1971) looks at enrolment rates in Kenya in the period

1963 - 1969, in both primary and secondary schools and asserts that they have been rising very gradually because of the high proportion in the school age population. She further adds that despite government efforts in trying to satisfy a yearly growing demand for education only 85% of the primary school age

population is likely to be enrolled in the next one or two decades.

Raju (1973) emphasizes the importance of comprehensive educational planning to avoid wastage in terms of high drop-outs, repetition, poor educational structure and content. She points out that there is a general tendency in Kenya for projected enrolment to exceed the actual enrolment because of fast rate of population growth.

Kinyanjui, (1974) describes disparities in the provision of education in Kenya by comparing educational opportunities between rural areas and among different communities. He goes further to analyses the quality of education provided in different types of schools, in terms of teacher's qualification and examination performance and the extent to which Kenya is able to provide education to the primary school age population. He points out that in 1974, only 64% of the primary school - age population in Kenya were attending school, but if the drop-out and repetition rates were to be considered, it could be argued that only 30% were effectively getting primary education. This paper is closely related to the present study which analyses the distribution of educational facilities in Nairobi and the ability of the Nairobi City Commission to cater for the increasing school-age population.

In a more recent contribution, Kinyanjui (1977) gives a more detailed analysis of regional and class inequalities in the provision of primary education, asserting that the structure of the education resources and opportunities reflects the socio-economic structure of the society, which was inherited from the colonial period. He identifies and discusses the forces that

have influenced and continue to shape the emergence of inequalities in the provision of educational resources and opportunities at the primary school level. His analysis is based on participation rate and the type of schools and teachers qualifications in different districts and major urban centers of Nairobi, Mombasa, Kisumu and Nakuru. He concludes that inequalities have existed and persist in post - colonial Kenya.

Kinyanjui does not discuss, however, the contribution of the fast population growth rates in hampering the development of educational facilities in the areas neglected by colonialists.

A sector working paper by World Bank (1974) cautions educational planners on the need for clear understanding of the objectives that education is expected to fulfill. It asserts that rapid population growth together with the misallocation of educational resources has led to an increase in the number of illiterates in the developing countries (World Bank 1974 pp.1). It estimates that if the trend continues, the number of illiterates in the developing countries will increase.

The above literature has an important bearing on the present study in that it points out the problems of providing education in areas with rapid population growth rates. However, the literature discusses the developing world in general without focussing on a particular country or area. Some scholars are mainly concerned with the economics of education and only mention population in passing and therefore do not go into detailed analysis of population growth rates and their impact on education.

In Kenya, most of the work done has been concerned with describing the structure of education in pre-independence and post - independent period, and only mentioned the need for projecting future population in order to plan for educational requirements.

The foregoing literature reveals that all along since the late 1960's there has been increasing concern on the problems of providing education in circumstances of fast population growth

rates. A number of scholars have been concerned with the economics of education releasing a large proportion of public expenditure that goes to education. Others have analysed in detail the implications of fast population growth rates on the provision of educational facilities. However, majority have discussed the developing world in general without focussing on a

particular country or area. Those who have addressed particular aspects have concentrated on describing the educational structure and content as well as mentioning the need for projection on the expected school-age population. However, what the previous studies have pointed out and which is important for the present study, is the need for comprehensive educational planning at all levels. The present study focusses on Nairobi and treats in detail the interaction between population trends and the provision of primary education.

Jones (1975) analyses the effect of alternative population trends on educational requirements. He discusses the enrolment rate approach and the cohort method. These methods adopted in this study, form different data sets unlike Jones' data which are for developing countries. In further contribution, he discusses the relationship between the projected growth of total and school age population, methods of projecting school enrolment, primary school enrolment projection, secondary school enrollments, teacher requirements all based on Sri Lankan data.

Masaviru (1981) examines the projected school age and school going population vis-a-vis provision and distribution of education facilities. Her emphasis is on provision of school facilities in Nairobi primary schools only.

Odhambo and Khogali (1984) discuss a transition model which describes the stocks and flows of students through an education system in terms of transition ratios. In both papers the authors use stochastic model.

Odhambo and Owino (1985) in their paper describes a markov chain transition model for estimating school staying ratio, the drop-

out and completion ratios, the expected length of schooling, the survival time and cost of educating an individual upto completion.

Henin (1980) provides information on school population of two categories, namely 6 - 12 years and 13 - 16 years. He projected school population from 1969 to 1989. He admits that ".... we need to add that these figures are not enough by

themselves for the purpose of providing an educational plan for a province, other data are needed, namely, enrolment and drop-out rates as well as teacher - student ratio to calculate the required number of classes as well as the required number of teachers."

Nkinyangi (1980) discusses the impact of government policies on Kenya's primary school repetition and drop-out in the period 1970-78. He examines the factors which differentiate children who progress with their education from those who repeat or drop-out of the education system. School enrollments are also discussed but projections are not made.

Musyoki (1982) provides figures to show that a number of children between ages 6 and 12 years are not enrolled in school. Primary school enrolment is found to be very low in some regions, especially in the North Eastern Province. She notes that at primary level of education, about 86% of the school age children are enrolled, while at grade one the male and female rates are almost the same, drop-out among all children rise with subsequent grade and are slightly higher for females while enrollments are observed to be low in some regions, repetition rates are high among all children in all regions. Between 1970 and 1977, 3 to 6 per cent of the children are said to have repeated grade 1 to 6. In grade 7 where repetition is highest, is on the average 16% (UNESCO, 1980). She notes that there is a natural wastage of human resources because a majority of young people terminate their schooling at about 13 years of age. The reason for this

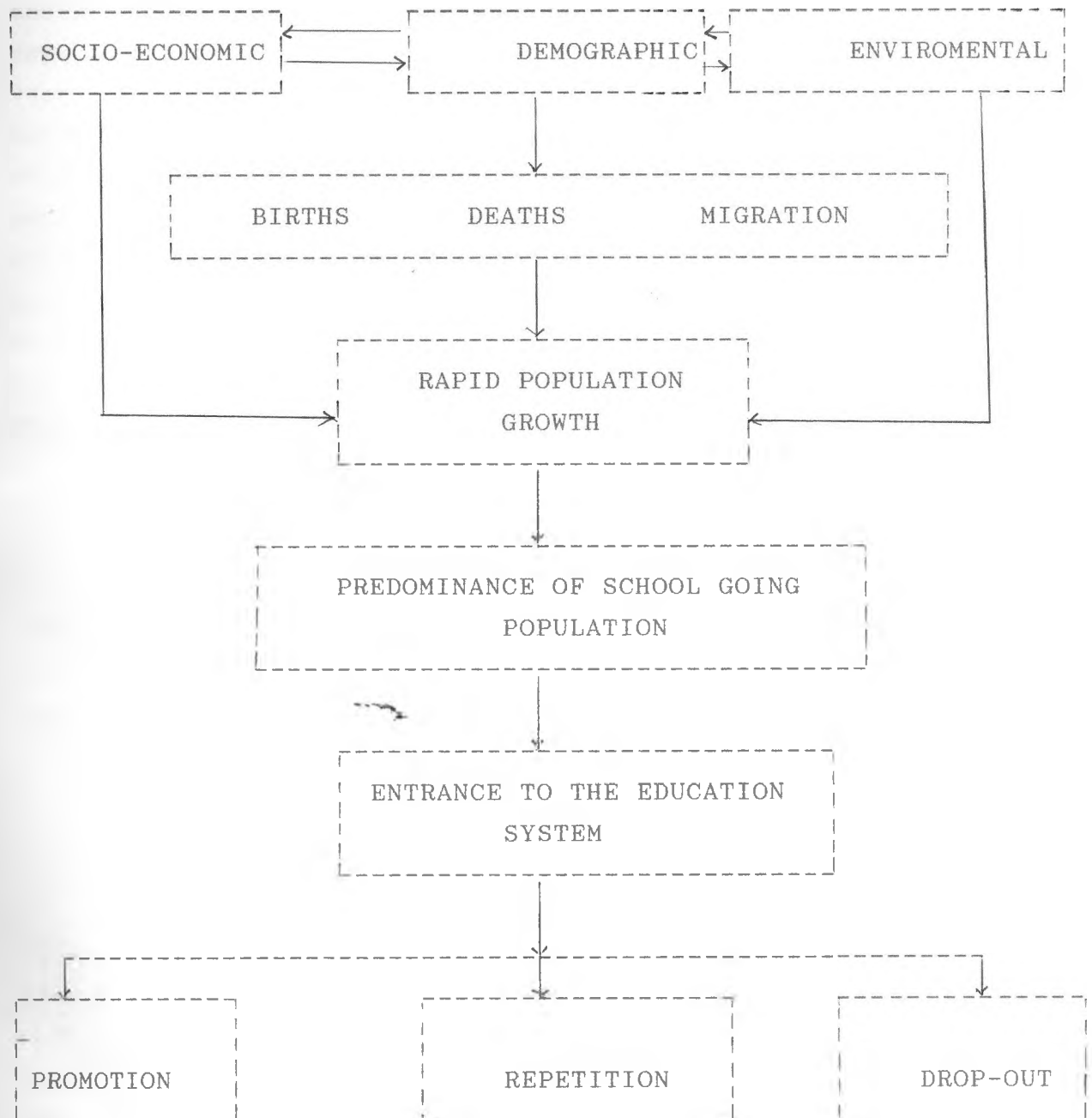
termination is partly due to limited opportunities for secondary education and training.

The CBS (1973 - 77) monograph) undertakes an in - depth analysis of trends and patterns of increase in school enrollments. It is observed that in the main standard one enrolment increased in 1974 in all districts but that except for Narok, there was a decrease in standard one enrolment in subsequent years.

Disparities such as females had lower enrollments were noted. Wastage were tackled but the present work covers wider span and projections are dealt with.

FRAMEWORK

STRUCTURAL MODEL



1:7 THEORETICAL FRAMEWORK - Conceptual Hypotheses

Abroad look into the provision of education in the province indicates that there are interplay of various factors. These include demographic, environmental and socio-economic variables, these factors persistently contribute to a steady but rapid population growth.

Population growth not only creates pressure on the nation's socio-economic resources, but also makes increasing demand on its educational services. The ever growing broad based pyramidal population structure means a large number of school age children will need to enrol into the school. This increasing number of school - age children demand an increase in the educational services given adequate facilities like classrooms, laboratories, libraries and adequate number of qualified teachers ensuring a reasonable pupil - teacher ratio. This implies then that should educational service fail to grow at the same rate as that of population, then the education services will not meet the demand, hence a large number of school - age children not in school.

The theoretical formulation, thus for this study is that demographic factors are likely to affect the primary school enrolment. From this formulation the following hypotheses can be derived:

- (1) Increased fertility is likely to affect school enrolment rate.
- (2) Decline mortality is likely to affect school enrolment rates.
- (3) Increased rural - urban migrants is likely to affect the school enrolment flow rate.
- (4) The number of pupils repeating and dropping out is likely to increase with time.
- (5) Primary school enrolment projections will influence the requirement for primary school teachers.
- (6) Universal primary education is likely to be achieved in the near future.

1:8 OPERATIONAL HYPOTHESIS.

In this study, demographic variables do affect the provision of education services, since there will be more school age children than can be enrolled in the schools. The increased demand for education is as a result of rapid population growth rate, changes in age, sex structure, mortality rates, size, fertility rates, migration, population density and distribution.

The operation hypothesis that can be restructured from the conceptual hypothesis are as follows.

- (1) The primary school enrollments are likely to increase overtime for all grades.
- (2) Primary school enrolment ratios are likely to tend to 1 as time passes by. If this is seen to be the case, then an achievement of universal primary education is implied.
- (3) Increased births and declining deaths has resulted into rapid growth of school age population.
- (4) Enrolment percentages are likely to increase with time.
- (5) Wastage in Kenya's education system are likely to increase with time, i.e drop - outs, repetitions.
- (6) Projected value of primary school enrollments are likely to increase with time.

1:9 CONCEPTUAL DEFINITIONS.

SCHOOL AGE POPULATION: This is the total number of persons within ascertain age group who are either required by law or are eligible to attend schools at a certain level. Thus we identify a compulsory school age population consisting of boys and girls in certain age group who are required by law to be attending school, unless they are exempted for specific reasons. We may also speak of respective age limit normally associated with school attendance at these levels.

SCHOOL ATTENDANCE: This is the actual presence of a child at school during a specific period of time which may be a school day, a school term or any specific period. A school year may sometimes correspond approximately to a calendar year.

SCHOOL ENROLMENT: This refers to the fact that a child's name is entered or remains on the rolls of a school as a pupil. The term is also used to mean the total number of pupils on the school rolls at a given time.

SCHOOL ATTENDANCE RATIO: The proportion of children in a given age group who are attending school at a given time.

SCHOOL ENROLMENT RATIO: The number of pupils enrolled in school at a given level of education related to a school age population.

FIRST LEVEL OF EDUCATION: That is provided in primary or elementary schools.

AN AGE GROUP: This refers to persons at same single year of age, such as seven-year old, or it may refer to all persons included with specified age limits such as from 10 - 14.

A COHORT: This is a term most commonly used in demography - means a group of persons experiencing a certain event in a specified period of time. Thus age - grade cohort refers to children of the same age entering the same grade during a given year. A grade cohort means a group of pupils, regardless of age, entering a certain grade at school during the same year.

GRADE PROGRESSION: This refers to the course of pupils progressing from any grade to the next higher one. This is usually

accomplished by means of promotion at the end of a school year. Pupils not promoted are expected to repeat the same grade the following year, they are called repeaters. Pupils who leave school before completing the full course of study of a specified level are counted as drop-outs.

PUPIL - TEACHER RATIO: This ratio is computed when we divide the total pupil enrolment at a specified school level by the total number of teachers at the school level.

TEACHER GRADE: There are six categories of professionally qualified teachers in primary schools namely P4, P3, P1, S1 and Graduate teacher in order of increasing qualifications. Formerly these were graded according to both their academic qualifications and the number of years successfully completed in teacher training institutions. But the grading was revised and has been mainly based on the performance in the training institutions. P4, P3, P1, teachers are trained in primary teacher training colleges while S1, in Kenya Science Teacher's College and graduates at Kenyatta University, another group of teachers currently doing a diploma course in education are in Siriba, Kagumo and Kisii.

DROP-OUT or SCHOOL DESERTION: Leaving school before the completion of a given stage of education or leaving at some intermediate or non - terminal point in a cycle of schooling.

REPETITION: A year spent by a pupil doing the same work in the same grade as in his previous year in school.

EDUCATIONAL WASTAGE: Incidence in a country's educational system, of drop-outs and repetitions.

SCHOOL RETARDATION AND ACCELERATION: These are measures defining relationship between an enrollee's age and the class in which he is enrolled. A pupil is scholastically retarded if the class in

which he is enrolled in is below that which is normally expected for this age. A pupil is scholastically accelerated if the class in which he is enrolled is above that normally expected for his age. These rates measure the relative amount of progress in school classes.

CHAPTER TWO

2:0. NAIROBI'S POPULATION PROFILE.

2:1. KENYA: URBANISATION TREND.

In order to understand the position of Nairobi as a prime city in the republic of Kenya, it is necessary to review the trend of urbanisation in the country.

In Kenya, urban centres are defined as settlements of 2000 or more inhabitants. There has been an appreciable increase of urbanisation in the country in the last three or four decades, as a result of rural - urban migration and other factors. The number of urban centres doubled in the period 1948 -1962 and almost doubled again in the 1969 - 1979 (table 2:2)

Similarly, there has been significant increases in the urban population from 276,240 in 1948 to 2,238,800 in 1979. However, Kenya's urban centres are still small by global standards. By 1979 there were only three urban centres with population of 100,000 or more. Also characteristic of Kenya's urbanisation trend is the dominance of the two major urban centres of Nairobi and Mombasa both in terms of population size and industrial and commercial activities.

TABLE 2:a.

NUMBER OF TOWNS AND TOTAL URBAN POPULATION IN KENYA 1948 - 1979.

SIZE OF URBAN CENTRES.	1948	1962	1969	1979

100,000 +	1	2	2	3
20,000 - 99,999	1	2	2	13
10,000 - 19,999	2	3	7	11
5,000 - 9,999	3	11	11	22
2,000 - 4,999	10	16	26	41
Total urban centres.	17	34	48	90
Total urban population.	276,240	670,950	1,079,905	2,238,80
Percent of Kenya's population.	5.1	7.7	9.9	14.6

Source: Adapted from the Kenya 1979 census data.

In 1948, Nairobi was the only urban centre with a population of over 100,000. Majority of urban centres have populations of 5,000 and below. Of the total urban population in 1969, Nairobi and Mombasa accounted for about 70%, while the next largest urban centre (Nakuru) accounted for only 4 percent. The rest of the urban population was more or less evenly spread with majority of the centres having a share of less than 1 percent of the total. The 1948 - 1979. 1979 census data, however reveal less dominance by the two major urban centres of Nairobi and Mombasa, with a share of their urban population declining to 52 percent. The trend was towards a comparatively even spread of the urban population. Lower growth rates (less than 5 percent) were experienced by Nairobi and Mombasa in the period 1969 - 1979 while centres such as Kisumu, Nakuru, Eldoret experienced much higher average annual growth rates well above 7 percent. In addition to this many more centres have emerged in the period 1969 - 1979 where a large number of rural migrants have preferred to settle, other than add

to the 1979 already crowded larger centres.

In conclusion one can say that there has been asignificant rise in Kenya's urban population in the period 1948 - 1979, a result of fast growth rates by comparatively smaller centres and emergence of more centres. However, boundary changes make the populations of the four censuses not strictly comparable, since part of the increases 100,000 + could be attributed to boundary expansion.

In a country that is still largely agricultural with over 85 percent of its total population residing in rural areas, the city of Nairobi stands out as a dominant urban centre holding a comparatively large proportion of both the urban and total population

POPULATION OF NAIROBI AS A PROPORTION OF TOTAL POPULATION OF KENYA AND TOTAL URBAN POPULATION IN KENYA 1948 - 1979.

TABLE 2:b.

YEAR	TOTAL KENYA	POPULATION URBAN	POPULATION NAIROBI	NAIROBI AS A PERCENTAGE OF KENYA POPULATION	NAIROBI AS A PERCENTAGE OF TOTAL URBAN POPULATION.
1948	5,407,599	276,240	118,97	2.2	43.1
1962	8,365,942	670,950	888	4.1	51.2
1969	10,942,70	1,079,9	569,28	4.7	47.2
1979	15,327,06	2,238,8	827,77	5.4	37.2

Source: Adapted from the Kenya 1979 census data.

Nairobi has been holding an increasing proportion of the total population of Kenya in the period 1948 - 1979. Part of the increase is attributed to 2,000 - 4,999 10 16 26 expansion of the city boundary to include parts of Kiambu, while 41 a major part of the increase is as a result of in migration from rural areas.

Conversely Nairobi has been experiencing declining proportions of the total urban population. As already mentioned, Total urban centres. 17 34 48 this could be a trend towards spread of urban population in later 90 post independence years as more urban centres emerge (for example Webuye) and the comparatively smaller urban centres experience larger population increases. This is a way of Total urban population. 276,240 670,950 1,079,905 implementing the goal of growth poles to ease congestion problems 2,238,80 in the major urban centres of Nairobi and Mombasa.

All the same, Nairobi's average growth rates are still higher than those of other cities in the developing countries. According to data on Percent of Kenya's population. 5.17.79.9 annual growth rates of identical agglomerations, the cities with population sizes of 500,000 - 1,000,000 (Nairobi falls in this group) in the less developed regions had an average annual growth rates ranging from 3.69 in 1965 - 1970 and a mean annual growth rate of 4.01 in the period 1950 - 1970. Nairobi had a growth rate of 5.8 in the same period. Such a high rate of population growth has serious implications in terms of urban population density and provision of necessary facilities such as housing,

education medical, food, water, employment and transportation.

2:2. PATTERNS OF POPULATION DISTRIBUTION

The trend of overall population density in Nairobi appears interesting. In 1948 and 1962, overall population densities were very high in the range of 1500 - 3000 persons per square kilometre, while in the later periods they declined to less than 1,000 persons per square kilometer. The much lower population density in 1963 reflects the expansivity of the city boundary to include the less closely settled rural areas of southern Kiambu.

POPULATION BY AREA AND DENSITY FOR NAIROBI. 1948 - 1979.

TABLE 2:c.

YEAR	TOTAL POPULATION	AREA Kmsq	DENSITY POP Km.Sq
1948	118,976	83.92	1418
1962	266,794	90.65	2943
1963	343,500	684	502
1969	509,266	684	745
1979	834,000	684	1210

Source: Kenya 1979 census data.

These overall densities are however misleading since they disguise the problem of population concentration in some areas within the city.

Regional analysis of population density reveals very uneven distribution, with densities ranging from 94 persons per square kilometer in Mugumoini to as high as 36,007 persons per square kilometer in Pumwani. The Eastland areas such as Mbotela, Pumwani, Maringo and Mathare with very high population concentrations, well above 30,000 persons per square kilometer, contrasts with the less closely settled areas such as Karen, Kilimani, and Lavington in the western half of the city with densities below 500 persons per square kilometer.

Comparison of population figures between 1969 and 1979 show very significant increases in the population size of most of the Eastland areas such as Kibera, Mathare, and Eastleigh. Average population densities in these areas more than doubled in the period under consideration. These are receiving areas for the mounting influx of semi-skilled and unskilled rural migrant who cannot fit in the so called modern employment sector and therefore resort to informal jobs such as shoe - shining and street hawking which fetch low income, and they can only afford to stay in unauthorised settlements. It's estimated that one third of the city's population lives in unauthorised settlements and that a much higher proportion lives in public housing which is critically overcrowded and inadequately serviced. This overcrowding in turn leads to strain on the existing facilities, given that there is no room for expansion.

Figures for the population densities by region have been given on different table for 1969 and 1979 because the names for the

two censuses period do not overlap. Some regions in 1969 were deleted in 1979, others had their boundaries expanded and names changed thus making side by side comparison difficult.

TABLE 2:d.

POPULATION BY AREA AND DENSITY FOR NAIROBI ADMINISTRATIVE AREA 1969

REGION	AREA	POPULA/ TION	POPULATION DENSITY	REGION	AREA	TOTAL POPULA/ TION
		TOTAL				TION
NAIROBI	693	509,286	745	RACECOURC	1	23658
TELECOM	2	1,555	1005	MATHARE	2	21375
LORETO/CO	2	888	493	EASTLEIGH	5	1430
BENARD	2	1,743	812	MUTHURWA	-	5634
LAVINGTON	3	2,196	628	SHAURIMOY	1	11176
THOMSON	3	2,848	1028	BAHATI	1	11830
KILIMANI	2	1,748	908	KALOLENI	-	4787
WOODLEY	2	4,019	1833	MAKONGENI	-	7756
HOSPITAL/	3	6,272	2110	MAISHA	-	6471
UPPER/H	2	2,289	1411	MBOTELA	-	3904
NAIROBI/H	4	8,493	1954	DONHOLM1	-	8984
KILELESHW	2	2,490	1036	DONHOLM2	-	1445
ARBORETUM	1	209	172	JERUSALEM	-	3944
SCATERS	4	4,850	1351	MARINGO	-	16910
UPPER/P/L	4	4,562	1162	JERICHO	-	17986
P/LANDS	4	16,086	4151	MAKADARA	-	15375
CITYPARK	1	587	392	DELEMERE	-	2385
NGARA/W/E	3	24,527	9783	WEST	-	5655
						2649

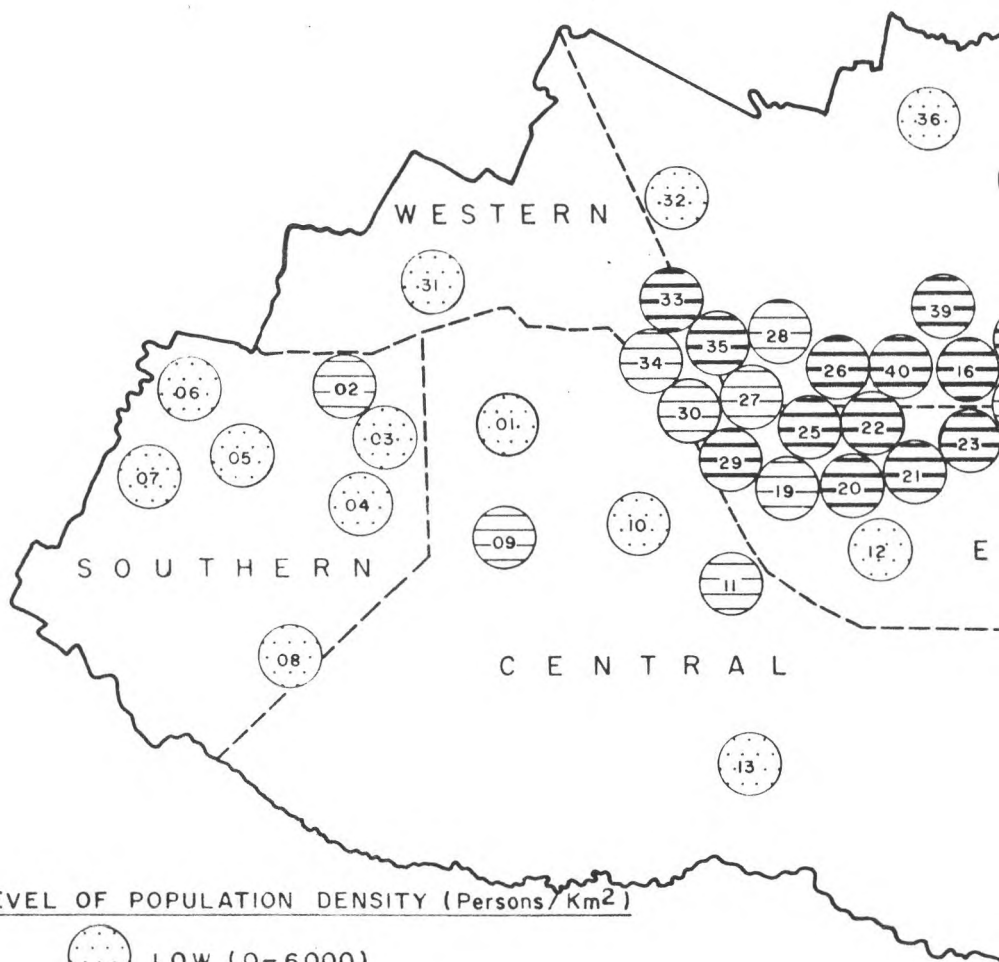
MUTHAIGA	3	2,656	762	SOUTH C	-	2977	3561
JUJA	2	12,283	7444	SOUTH B	-	5557	6195

Source: Kenya Population census, 1969 Vol 1 Table 1

POPULATION SIZE AND DENSITY BY ADMINISTRATIVE AREAS IN NAIROBI, 1979

TABLE 2:e.

REGION	AREA	TOTAL	POPULATION	AREA	TOTAL	POPULA/
			POPULATION	REGION		POPULATIO
			DENSITY			TION
						DENSITY
-----	-----	-----	-----	-----	-----	-----
NAIROBI	693	827775	1210	MAKONGENI	0	16606 27676
KANGEMI	5	21081	3933	MBOTELA	.9	14073 43978
KAWANGWAR	4	24413	5261	BAHATI	.6	10670 20519
RIRUTA/S	5	17165	3433	MARINGO	.4	13083 32707
WAIHAKA	4	7365	1521	UHURU	2	23813 12149
UTHIRU	6	8140	1218	SHAURI/MO	1.4	18858 14286
MUTUINI	4	7627	1588	PUMWANI	.4	14403 36007
KILIMANI	24	45111	1805	KARIOKOR	.8	8521 12530
KAREN/LAN	74	13112	176	PANGANI	1.5	17223 10257
KIBERA/WO	7	63353	8515	CITY/CENT	1.2	18402 15863
GOLF/COUR	5	16670	2885	NBI/CENTR	1.2	8859 7382
NBI/S/W	11	28997	2432	SPRING/VA	25.8	18559 788
IND/AREA	10	93314	840	KARURA	40.3	11031 295
MUGUMOINI	124	11750	94	PARKLANDS	3.8	23965 8856
EMBAKASI	52	13502	217	NGARA/W	1.3	10044 8100
DANDORA	162	22672	139	NGARA/E	1.2	16335 13173



LEVEL OF POPULATION DENSITY (Persons/Km²)



LOW (0-6000)

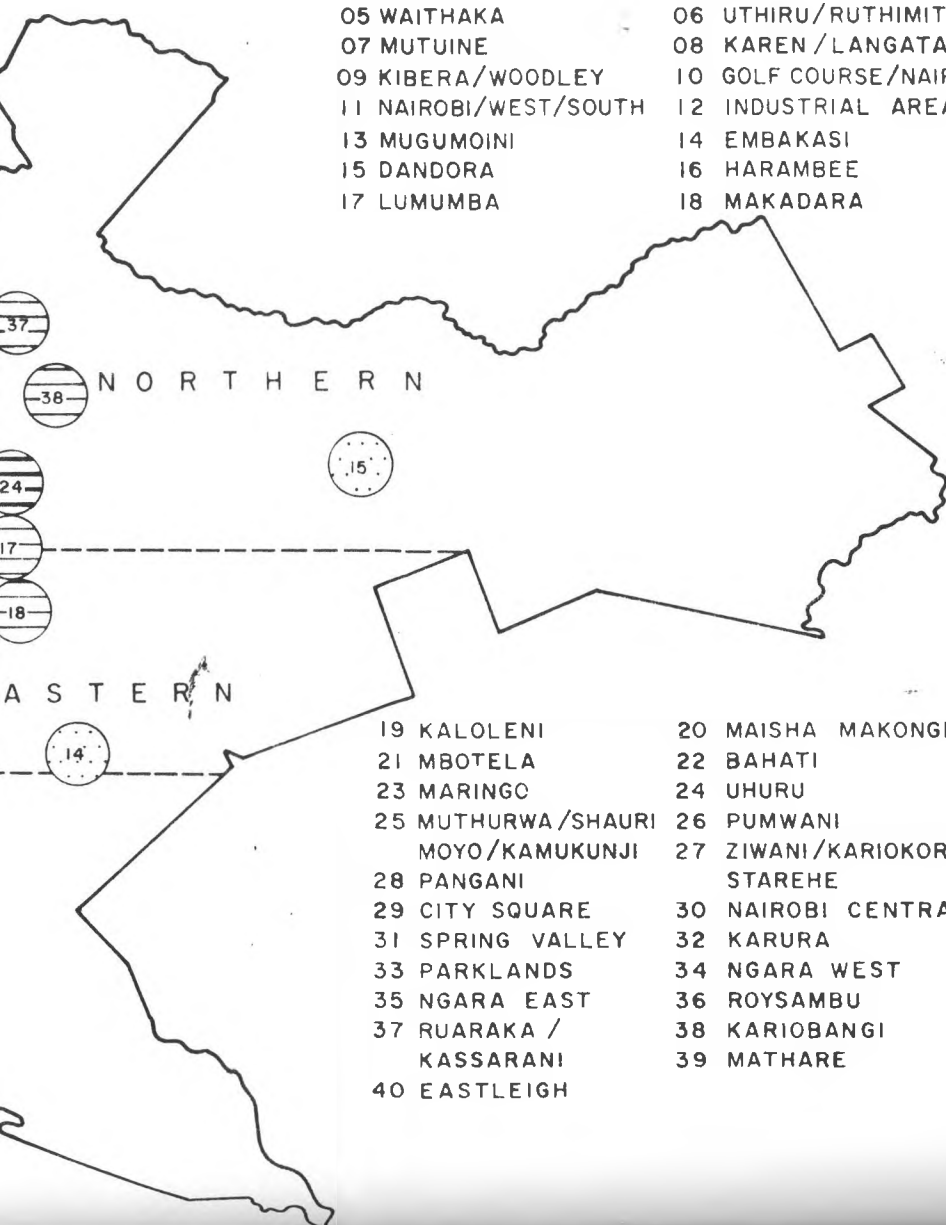


MEDIUM (6001-16000)



HIGH (16001-40500)

WARDS



01 KILIMANI	02 KANGEMI
03 RIRUTA	04 RIRUTA SOUTH
05 WAITHAKA	06 UTHIRU/RUTHIMITU
07 MUTUINE	08 KAREN/LANGATA
09 KIBERA/WOODLEY	10 GOLF COURSE/NAIROBI
11 NAIROBI/WEST/SOUTH	12 INDUSTRIAL AREA
13 MUGUMOINI	14 EMBAKASI
15 DANDORA	16 HARAMBEE
17 LUMUMBA	18 MAKADARA

N O R T H E R N

E A S T E R N

19 KALOLENI	20 MAISHA MAKONGENI
21 MBOTELA	22 BAHATI
23 MARINGO	24 UHURU
25 MUTHURWA/SHAURI	26 PUMWANI
MOYO/KAMUKUNJI	27 ZIWANI/KARIOKOR/
28 PANGANI	STAREHE
29 CITY SQUARE	30 NAIROBI CENTRAL
31 SPRING VALLEY	32 KARURA
33 PARKLANDS	34 NGARA WEST
35 NGARA EAST	36 ROYSAMBU
37 RUARAKA /	38 KARIOBANGI
KASSARANI	39 MATHARE
40 EASTLEIGH	

HARAMBEE	0	16257	20321R/SAMBU/K	17.7	29881	1819
LUMUMBA	1	13544	11286K/BANGI	13.2	43349	3612
MAKADARA	1	11931	10085MATHARE	3.2	68456	34228
KALOLENI	0	5120	8000EASTLEIGH	7.7	53562	7439

Source: Kenya, Republic of, 1979, Provisional census figures,

Ministry of Finance and Community Affairs.

DETERMITANTS OF POPULATION GROWTH.

NAIROBI

The basic factor underlying population change in any region are changes in any one or all the demographic indices fertility, mortality, and migration. However, detailed analysis of these factors is limited by lack of complete vital registration. Although birth and death registration was made compulsory in Nairobi in 1963, there has not been a complete registration of these vital events. The rates may also be distorted by the people who come only temporarily from the surrounding areas for better hospital facilities (maternity and general treatment).

2:3:1 FERTILITY.

Statistics indicate that Nairobi's fertility level, though still relatively high, is much lower than that of other provinces within Kenya. This is because Nairobi extra provincial district is in itself an urban centre, and statistics reveal that there are considerable variations in fertility levels between the urban and

rural sector within provinces. In 1969, Nairobi recorded a much lower total fertility rate of 5.5, while an average rate of 7.6 was recorded for Kenya. Provinces such as Central and Nyanza recorded total fertility rates of 8.7 and 7.9 respectively which are well above the national average. These differentials in fertility attitudes by different tribal groups and differences in values regarding marriage; and in the case of urban women, employment in the modern sector which has led to changing values regarding family roles and childbearing.

The apparent rise in fertility could be attributed to improved health and nutritional status among more women with at least primary education, leading to less foetal loss and still birth. The still birth rates is estimated to have declined from 0.95 in 1972 to 0.19 in 1974. There has been a tendency among educated women to abandon adherence to the traditional habits of breast feeding, sexual taboos and polygamy, all of which are said to be inhibiting factors on fertility. Without the counter acting influence of birth control practice, the result of these habits have been, lower birth intervals and increased births within the reproductive life span. Rising fertility is therefore a factor which in part contributes to the population increase in the city.

Analysis of the crude birth rates, based on the city council of Nairobi vital registration statistics does not reveal a definite trend in fertility levels. There is inconsistency in the rates, which fluctuate around 30 and 40 births per thousand population. This could be attributed to a combination of incorrect

estimate of the mid-year population and under-registration of births. Adjustment of the estimated population figures of 1,030,000 for 1979, to the census figure of 827,773 for instance, brings the crude birth rate from 31.98 to 40.0. This is nearer to that of 1969 (40.8). Much more reliable data on annual crude birth rates for Nairobi have been obtained from projections by Henin (1979).

However, the trend is likely to reverse in the late 1980's due to efforts being made by the government in conjunction with the family planning association, to cut down on average family sizes, and the realisation by many women in Nairobi that large families are a burden both in terms of opportunity costs and the high cost of living. It may be that a large proportion of the women residing in Nairobi are employed in the type of jobs (e.g nursing) that preclude reconciling a large family size with work responsibility and would therefore prefer small family sizes. This would lead to a reduction in the proportion of school - age population in subsequent years, but the reduction would not be sufficient to ease city council of the burden of providing additional primary school places every year, since mortality decline and migration seem to be the major factors contributing towards population increase in Nairobi.

2:3:2 MORTALITY.

In the absence of accurate vital registration or other high quality source of information, the study of both adult and child mortality must be confined to drawing tentative inferences from

partial and indirect evidence. Judging from city council records, mortality levels have declined significantly in the decade 1966 - 1977. Crude death rates and infant mortality rates are estimated to have declined from 11.7 and 69.0 respectively in 1967 to 3.8 and 44.9 in 1977. But the rates appear greatly underestimated because of the effect of over - estimation of the mid - year population and likely under - registration of deaths.

The estimated crude death rate of 6.8 in the 1960's is too low, especially when the fact that effective public health measures were just at the initial stage after independence, is considered. The estimated crude death rate from the 1969 census data was 10.0 and this is unlikely to have declined to 3.9 by 1977. Similarly the infant mortality rate deviate from those at the 1969 census; 1979 and 1962 for males and females respectively as against an average of 49.7 recorded by Nairobi City Council.

A more reliable source of information on mortality in Kenya is contained in the relationship between the number of children ever born and those still alive at census date, and the proportions of persons with parents alive at census date. From this, levels of early childhood mortality and adult mortality can be computed using advanced demographic techniques.

There has been a significant decline in child mortality in the period 1962 - 1979. The greatest decline of about 24 percent was in the probability of dying from birth to age 3 in 1969. It is known that child mortality in African countries is highest after age two when mothers wean their children and do not provide a

balanced substitute, and this leads to diseases such as kwashiorkor, which eventually leads to death. This notion may be extended to Nairobi and an argument developed that the nutritional standards among families in Nairobi have greatly improved in the period under consideration, so that there is less deaths resulting from early childhood weaning. Other factors underlying mortality decline are, the innovation of effective public health measures such as immunisation against measles, small pox and tuberculosis, and the availability of early accessible and advanced hospital facilities after independence.

Reduction in early childhood mortality leads to increased population and a larger proportion in the school- age population. The similarity of the effects of mortality reduction to those on an increase in fertility are well known and have been analysed in detail by Coale (1966). Mortality decline is therefore a factor which has contributed to the increasing school - age population in the city of Nairobi and the inability of the city council to cope with the rising demand for primary education. However, the difference between intercensal growth rate and natural increase of population, indicates that quite a substantial portion of the increase is a result of in - migration. In 1962 - 1969 period, intercensal growth rate was estimated at 5.8 percent of which natural increase was only 3.1 percent, and migration 2.7 percent. The difference between crude birth rate and crude death rate in 1977 also indicate that out of the total growth rate of about 5 percent, natural increase accounted for about 60 percent (3.0

percent natural increase), while the rest was a result of in - migration.

2:3:3. MIGRATION AND AGE - SEX STRUCTURE:

The high rates of average annual population growth in Nairobi are largely attributable to in - migration from different parts of Kenya. Analysis of population by place of birth in 1979 revealed that of the people enumerated in Nairobi, about 75 percent were born elsewhere. Tabulations of population by districts of birth and district of enumeration show that the migrant streams are mainly from densely populated rural areas in Central Nyanza, Western and Eastern provinces.

TABLE 2:f. POPULATION BY SEX, FIVE - YEAR AGE GROUP, AND PLACE OF BIRTH, 1979 DISTRICT OF ENUMERATION ; NAIROBI.

BORN IN NAIROBI				
AGE GROUP	MALE	FEMALE	TOTAL	% TOTAL
0-4	40358	40181	80539	9.74
5-9	24006	24783	49389	5.96
10-14	14647	14999	29646	3.58
15-19	8559	8710	17369	2.09
20-24	5215	5020	10235	1.24
25-29	3872	3277	7149	.86
30-34	2704	2182	4886	.59

35-39	1705	1574	3279	.4
40-44	1356	1176	2532	.31
45-49	993	805	1798	.22
50-54	720	663	1392	.17
55-59	522	467	989	.12
60-64	334	381	715	.09
65-69	263	279	542	.07
70-74	187	243	430	.05
75+	207	295	502	.06
NOTSTATED	250	191	441	.05
	106607	105226	211831	25.59

Source: Kenya 1979 population census.

BORN ELSEWHERE.

AGE GROUP	MALE	FEMALE	TOTAL	% TOTAL
0-4	21105	21318	42423	5.12
5-9	18945	21272	40217	4.86
10-14	16523	22342	38865	4.7
15-19	31449	38678	70127	8.47
20-24	74869	47903	122772	14.83
25-29	65264	35509	100773	12.17
30-34	48084	20398	68482	8.27
35-39	29404	12168	41572	5.02
40-44	23431	7737	31168	3.77

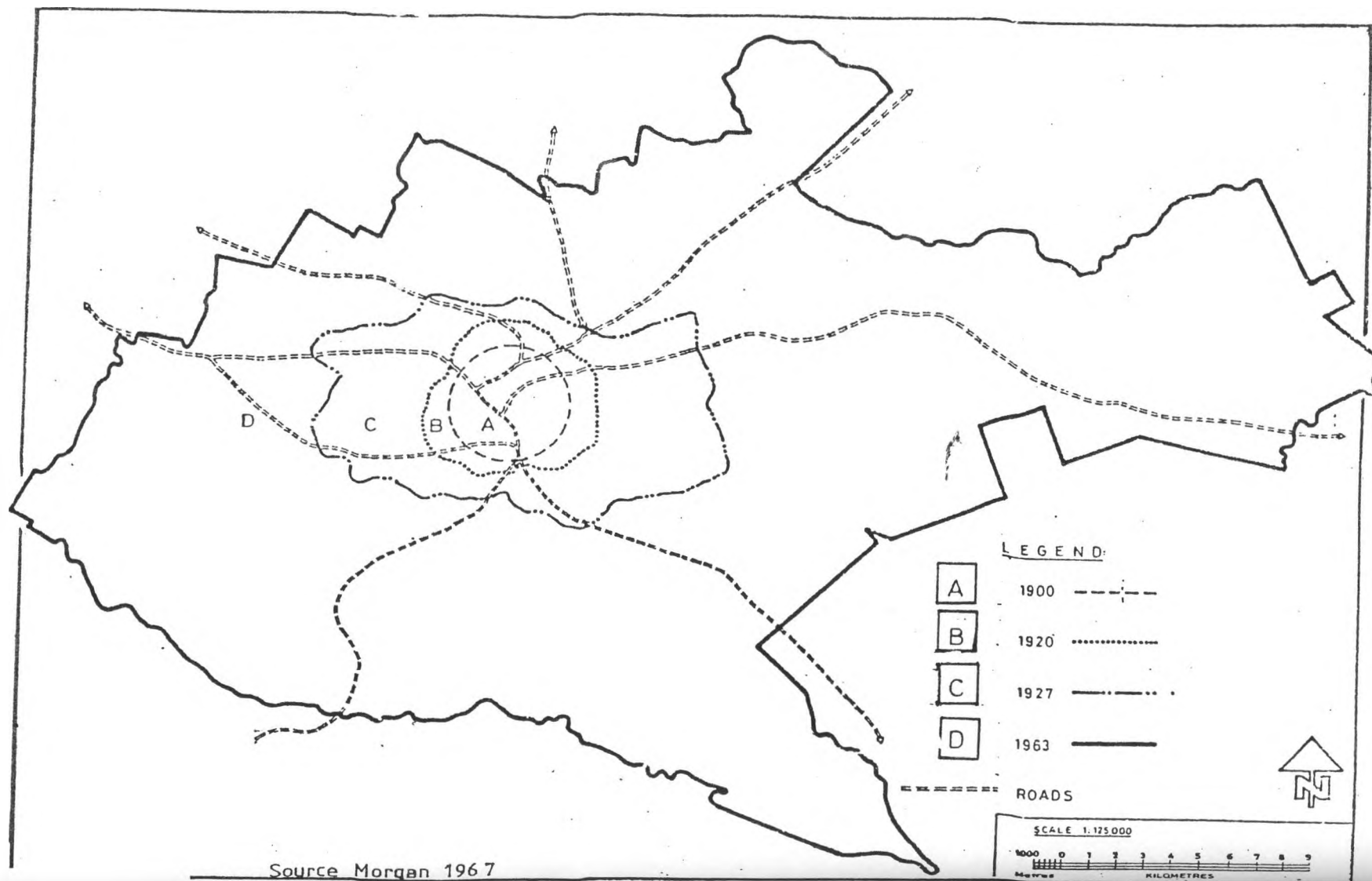
45-49	17478	4851	22329	2.7
50-54	11209	3573	14782	1.79
55-59	6529	2279	8808	1.06
60-64	3287	1616	4903	.59
65-69	2235	1148	3383	.41
70-74	1033	817	1850	.22
75+	1119	1068	2187	.26
NOTSTATED	877	424	1301	.16
TOTAL	372841	243101	615942	74.41

Source; Republic of Kenya, Population census 1979. Ministry of Economic Planning and Development.

Majority of migrants from Central province came from Muranga, Kiambu, Nyeri, while Siaya, Kisumu, South Nyanza were major sources of Nyanza province migrants. In Western province, Kakamega, the most closely settled district in the area, contributed more than three quarters of the migrants from the province. Out of about 75 percent migrant population in Nairobi, only 6 percent were from outside Kenya, with Uganda contributing the greatest proportion (1.11 percent). This underlines the importance of rural migration in contributing towards population increase in Nairobi, thus the hypothesis "a large proportion of Nairobi's population constitutes rural population" is accepted.

TABLE 2.g. POPULATION BY SEX, DISTRICT OF BIRTH AND DISTRICT OF ENUMERATION IN 1979. DISTRICT OF ENUMERATION; NAIROBI.

DISTRICT OF BIRTH	MALE	FEMALE	TOTAL	PERCENTAGE
NAIROBI	106607	105226	211833	25.59
KIAMBU	26862	24430	51292	6.2
KIRINYAGA	5447	3272	8719	1.05
MURANGA	40899	23897	64796	7.83
NYANDARUA	2313	1573	3886	.47
NYERI	23813	15814	39627	4.79
CENTRAL SO STATED	27	24	51	23.24
KILIFI	1290	540	1830	.22
KWALE	511	185	696	.08
LAMU	189	134	323	.04
MOMBASA	4915	4083	8998	1.09
TAITA-TAVETA	2966	2117	5083	.61
TANA-RIVER	239	132	371	.04
COAST 'SO STATED	47	30	77	2.07
EMBU	4260	2391	6651	.8
ISIOLO	942	528	1470	.18
KITUI	17073	6829	23902	2.89
MACHAKOS	42469	22327	64796	7.83
MARSABIT	1686	900	2586	.31
MERU	5745	3200	8945	1.08
EASTERN SO STATED	14	7	21	2.07
GARISSA	432	253	685	.08
MANDERA	947	563	1510	.18
WAJIR	665	357	1022	.12
N.E SO STATED	68	55	123	.38
KISII	7616	4323	11939	1.44
KISUMU	19459	13540	32999	3.99
SIAYA	32751	21920	54677	6.61
SOUTH NYANZA	14186	9149	23335	2.82
NYANZA SO STATED	390	313	703	14.92
KAJIADO	2181	1008	3189	.39
KERICHO	3459	1436	4895	.59
LAIKIPIA	950	732	1682	.2
NAKURU	5540	4442	9982	1.21
NANDI	967	593	1560	.19
NAROK	635	298	933	.11
BARINGO	862	477	2337	.16
ELGEYO - MARAKWET	528	246	774	.09
SAMBURU	913	277	1190	.14
TRANS - NZOIA	812	656	1468	.18
TURKANA	268	123	391	0
UASIN-GISHU	1066	918	1984	.24
WEST-POKOT	154	80	234	0
RIFT-VALLEY SO STATED	195	186	981	3.61
BUNGOMA	4012	2984	6996	.85
BUSIA	8189	5368	13557	1.64
KAKAMEGA	56953	35848	92801	11.2
WESTERN SO STATED	29	25	54	13.69
KENYA (SO STATED)	644	566	1210	.15



Source Morgan 1967

NAIROBI: BOUNDARY CHANGES SINCE 1900

TANZANIA (")	3495	3008	6503	.78
UGANDA (")	4238	4915	9153	1.11
BORN ELSEWHERE	18528	16020	34548	4.17
NOT STATED	2	5	7	0
TOTAL	479448	348327	827775	100

Source: Kenya 1979 Population census.

The influx of rural migrants into the city has tended to distort the age - sex structure of the cities population. The city's population is becoming more youthful with an increasing proportion of children in the age group 0 - 14. In 1962, this age group represented 32.0 percent of the total population; this rose to 36.0 and 40.2 in 1969 and 1979 respectively. This is a consequence of relatively high proportion of children migrants (15 percent out of 75 percent in 1979) and dominance of reproductive age groups 15 - 49 (55 percent out of 75 percent in 1979) in the migrant population.

On the other hand, the sex ratio has been declining as more females come to the city to look for employment, school places, or to join their husbands. The sex ratio declined from 187 in 1962 to 116 in 1979. The increasing number of females in the city in a way contribute to increased fertility levels in the country as a whole, and increased births in Nairobi, since spouses spend a larger part of their reproductive lifespan together, unlike in the past where it has been the tendency for women to remain in the rural areas while their husbands work in towns.

In conclusion, the population of Nairobi has been increasing

very fast as a result of rising fertility, decline in mortality and in - migration from the densely settled regions in other parts of Kenya. The high rate of population of children (0 - 14 years) which has serious implication for the demand for and supply of primary education in the city. It is becoming extremely difficult for the city education authorities to satisfy the increasing demand for primary education, given the limited available resources in terms of funds and space (land) especially in the in the high density Eastlands region where the bulk of the population live.

EDUCATIONAL FACILITIES AND THEIR DISTRIBUTION.

By the end of 1988 there were a total of 181 primary schools in Nairobi of which 150 were city commission maintained and enrolled a total of 138,925 pupils, the number of pupils enrolled in private schools is not clear since data from these schools is not included in the Ministry of Education censuses making it difficult for this study to measure their contribution. The city council primary schools have been holding a very significant proportion of the total enrolment in Nairobi, hence the analysis of the educational facilities being based mainly on the public schools.

The city council schools are distributed according to the five division namely Western, Northern, Eastern, Central, and Southern divisions. Schools within the low density areas, most of

the Central division schools within the Central Business District (CBD) and a few in the medium density zone in Nairobi West. Northern division schools are mainly located in the high density zone. Finally, the Eastern division schools fall within this closely settled high density zone in Eastlands. The expected situation then should be that the region with the highest population concentration should have the highest number of schools and total land acreage committed to them, with the most plausible assumption that the largest number of school - age population in the city resides in this area. Accordingly, the Nairobi urban study group recommends that primary schools should be within residential areas, and within walking distance of 250- 300 metres, in relation to population densities.

A glance at figure 2:1. gives the impression that the high density population concentration zone in the Eastern division of the city is well served with primary schools at a very close range. However, analysis of land acreage committed to the schools reveal that most of the eastern division and CBD schools have a very small land area per school. The reason is that many of these schools were established during the colonial days and were designed for much smaller number of pupils with no anticipation for increase in the intake. But with high annual population growth rate and consequently increases in the school age population, the schools have been taking much larger number of pupils without expansion of the school area. Expansion of school area may be almost impossible given that there are other competing and

equally important land-uses such as housing and for commercial purposes.

According to recommendation by the Nairobi urban study there should be a very strong positive correlation between the total land area in a school and the total number of pupils in that school, but this is not the case in Nairobi. Simple correlation revealed that there is very insignificant relationship between the number of pupils per school and the land area committed to the school. A correlation coefficient of + 0.10996 was obtained and when this was subjected to the t- test, it appeared insignificant. The reason for insignificant correlation between the acreage and the number of pupils per school is that schools farther away from the city centre, mostly in the northern and

ESTIMATED LAND REQUIREMENT IN PRIMARY SCHOOLS.

TABLE 2:h.

NUMBER OF STREAMS	No of classes pupil per class	Total no of pupils	Land needed (Acres)		
			BLOCK	PLAY/GRO	TOTAL
1	7 * 50	350	1.5	1.5	3
2	14 * 50	700	2.5	2.5	5
3	21 * 50	1050	3	4	7

Source: City council of Nairobi. "Nairobi urban study group paper
No. 23 1973.

Avenue primary school are disturbed by excessive noise from motor vehicles. music stores and clubs, all of which reduce pupils concentration on class work.

TABLE 2.i. PERCENTAGE DISTRIBUTION OF TEACHERS' GRADES IN NAIROBI BY DIVISION. 1988.

TEACHER GRADE	WESTERN	EASTERN	NORTHERN	SOUTHERN	CENTRAL
GRADUATE	.2	.1	.1	0	0
ATS	2.7	1.2	.8	.9	2.5
S1	11.3	5.9	5.8	9.1	12.7
P1	56.6	58.5	61.5	53.7	50.8
P2	14.2	20.1	17.6	19.4	20.5
P3	3.5	4.5	2.5	3.6	4.7
UQ	2.6	5.8	.7	3.5	3.9
UT	8.9	4.4	11.9	9.8	4.9
TOTAL	100	100	100	100	100

Source; Computed from city council of Nairobi city education Dept

2:5. TEACHERS.

The qualifications of the teaching force in an educational system is taken as an important index of the quality of education provided. Both the initial level of education of the teaching staff and its professional qualification are very important factors which contribute towards effectiveness in teaching and performance in examination, which in part determines the upward mobility of individuals.

Generally the city of Nairobi is adequately provided with qualified teachers. In 1980 there was a total of 3008 teachers and an average pupil/teacher ratio of 32.5 of the total number of

teachers 99 percent were professionally qualified as against 65 percent for Kenya as a whole.

TABLE 2:j. DISTRIBUTION OF TEACHERS AND ESTIMATED NO OF PUPILS BY DIVISION. 1988.

NAME OF DIVISION	NO OF TEACHERS	% OF TOTAL	ESTIMATED SCHOOL GOING POP	% OF TOT PTR	
WESTERN	627	14.9	21267	15.3	33.9
EASTERN	1026	24.5	31126	22.4	30.3
NORTHERN	1019	24.4	35955	25.9	35.3
SOUTHERN	656	15.7	22842	16.4	34.8
CENTRAL	856	20.5	27737	20	32.4

Source; City Council of Nairobi, City Education Department.

a:Staffing section Annual Records. 1988.

b:Annual Report of City Education. 1988.

The total number of teaching staff has been increasing steadily in the decade 1979 - 1988. By end of 1988 in Nairobi, was one and a half times what it was in 1979. There has been significant improvements in the teacher calibre. The proportion of high grade teachers, such as P1 rose from 44 percent in 1979 to 51 percent in 1987 while the low grade such as P3 had declined to a mere 4.3 percent.

Analysis of the quantitative and qualitative distribution of

teachers by division, shows that the city education department has been very fair. Eastern division with the largest proportion of school - going population has also the highest percentage of teachers. Similarly the teachers grades are more less evenly distributed among the division except the highest calibre (S1 and above) whose proportion is much higher in the western division. Western and Northern divisions are slightly favoured with higher proportion (over 65 percent) of their teacher in the two grades S1 and P1. However, it must be pointed out that the unit of analysis, (division) tends to shelter pronounced differences between individual schools.

TABLE 2.k DISTRIBUTION OF PRIMARY SCHOOL TEACHER BY GRADE IN NAIROBI 1979 - 1988.

TEACHERS GRADE.	1979	1980	1984	1985	1987	1988
GRADUATES	0	0	0	0	2	3
ATS	38	39	56	64	67	64
S1	414	403	325	317	314	360
P1	1253	1375	1712	2073	2146	2368
P2	900	988	829	882	816	776
P3	241	236	197	172	181	157
P4	4	4	0	0	0	0
UT	0	7	24	30	437	185
UQ	7	0	0	23	214	139
TOTAL	2857	3051	3143	3561	4177	4188

Source: City Council of Nairobi, City Education Department.
Annual Reports 1979 - 1988.

CHAPTER THREE

3.0 DATA AND METHODOLOGY.

3.1 DATA SOURCE.

The present study relies on secondary data from the Central Bureau of Statistic (CBS), as well as Annual Reports published by the Ministry of Planning and National Development.

From the 1969 and 1979 census reports, information on population by age, sex, residence (province or district) is extracted. Furthermore, data on school attendance are obtained from these census reports.

Annual reports from the Ministry of Education and the Nairobi City Commission Education Department are used to give information on school enrollments and repeaters by sex, grade, type of school, district and, in the case of Nairobi, by division.

The present study covers all primary school in Nairobi province. The argument that one would use sampling with units large enough to reflect the whole population in a given universe does not apply in the present study. This is because aggregate numbers of school enrollments are to be used and therefore the total number of school - age and school - going population are to be determined. In view of these problem, it has been imperative to use secondary data rather than primary information. There are statistical data on enrolment and repeaters by grades from 1975 - 1980 for the seven grades of the first level of education in Kenya for boys and girls. This particular data set is from Nairobi City Commission's Education Department.

3:2 METHODOLOGY

In an attempt to make Kenya's primary school - age population projection, a base year is necessary. The year 1969 is preferable as base year because this is the year in which census was conducted and fairly accurate information on Kenya's population levels is available.

It is also evident from past studies that the total number of children along may not give clear information to education planners and therefore projections by sex are necessary in this study.

The primary school-age population was projected and the expected future primary school age population estimated from this, using several projection methods. These include mathematical and ratio method, methods taking account of economic variables, and the cohort - component method.

The mathematical and ratio method required a series of total population figures for past years on which future population projections would be based.

Since only three sets of these were available for Nairobi from the census figures, use of the method was ruled out. The other techniques is very involving and requires information on economic variables such as per - capital - income, production , and land use which the author did not have easy access to.

Use was therefore made of intercensal growth rate technique. This method involve the calculation of the intercensal growth rate from the population data of 1969 and 1979 then the computed rate is fitted to an exponential growth model so as to enable the projection to be done.

The main assumption made is that within the period in question rates will remain unchanged.

Total Population for Nairobi 1969 - 509286

" " " " 1979 - 827775

Low projection

$$r = 1/r \ln Pt/Po$$

Growth rate $r = 0.048573163 = 4.86\%$

Total Population for Kenya's urban 1969 - 1,079,908

" " " " " 1979 - 2,308,794

1,228,886

High Projection

Growth rate $r = 0.075984946 = 7.60\%$

Average will give the medium project

The low projection which has been used in this study was arrived at after taking the population total figures for Nairobi for the two census period 1969 and 1979. The intercensal growth was then computed then fitted into an exponential growth model.

Since the study group target is the primary school population aged 6 -13 years and since the census data is given in five year age groups it is necessary to break the five year age group into single years, since the age groups 5 - 9 years and 10 - 14 have boys and girls who are either below or above primary school age. It then becomes necessary to use interpolation coefficients based on the sprague multipliers formular to break

the five year age group into single years 6 - 13 which constitutes the primary school population.

The formular is as follows:

$$f(x) = f(x_p) = f(x_0)$$

$$f(x_0) + \frac{(p+2)Df(x_0)}{1!} + \frac{(p+2)(p+1)D^2f(x_0)}{2!} + \frac{(p+2)(p+1)(p)D^3f(x_0)}{3!} +$$

$$\frac{(p+2)(p+1)(p)(p-1)D^4f(x_0)}{4!} + \frac{p(p-1)(5p-7)D^5f(x_0)}{5!}$$

Where $P = \frac{x - x_0}{h}$; $0 = p < 1$, $x_0 < x < x_1$

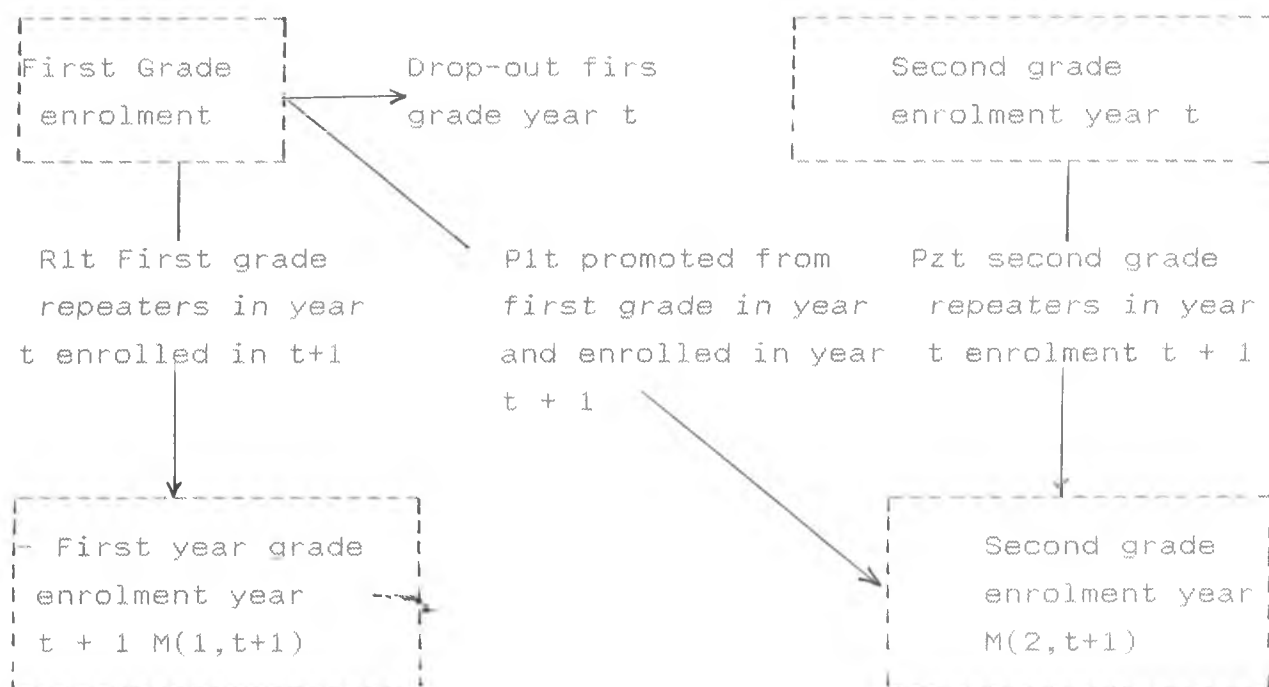
Hence

$$f(x) = C_1 f(x_0) + C_2 f(x_1) + C_3 f(x_2) + C_4 f(x_3) + C_5 f(x_4)$$

Where C Are the Sprague coefficients corresponding to the age groups.

After the single years had been computed, projection was then done using the intercencal growth rate discussed earlier in the chapter and fitted to an exponential growth model. This was computed for the primary school population for each of the forty wards in Nairobi as well as in each of the five divisions.

The cohort analysis relies heavily on percentages/proportion relative to the original cohort, the attrition rates relies on the same. The cohort analysis was done for each of the five divisions. In establishing the school wastage, the repetition, drop-out and also the promotee, the relationship below was used.



Taking the first grade as an example, repeaters plus promotees and drop-outs equal first grade enrolment. Therefore drop-outs may be computed as the balance enrolment and the total promotees and repeaters. The number of promotees to standard 2 may be obtained from standard 2 enrolment less repetition in that grade and the number of drop-outs may be directly estimated.

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The number of promotees to standard 2 may be obtained from standard 2 enrolment less repetition in that grade and the number of drop-outs may be directly estimated.

$$M_{2t} - R_{2t} = R_{2t} \text{-----} \quad (i)$$

$$M(2, t+1) = P_{1t} \text{-----} \quad (ii)$$

$$R_{1t} = M_{1t} - P_{1t} - D_{1t} \text{-----} \quad (iii)$$

Where

M_{1t} represents first grade enrolment in year t

R_{1t} represents first grade enrolment in year $t + 1$

P_{1t} represents promotees from first grade in year t and enrolled in year $t+1$.

$M(1, t+1)$ represents first grade enrolment in year $t + 1$

M_{2t} represents second grade enrolment in year t

R_{2t} represents second grade repeaters in year t enrolled in year $t + 1$

M(2,t+1) represents second grade enrolment in year t + 1
 r2t represents second grade repetition rate in year t
 Dit represents drop-outs from the first grade in year t.
 Thus the number of repeaters in the first grade can be obtained

$$R_{1t} = M_{1t} - (M_{2, t+1} - R_{2t}) - D_{1t} \text{ ----- (iv)}$$

Rearranging equation (iv) in order to make D_{1t} the subject we shall get.

$$D_{1t} = M_{1t} - (M_{2, t+1} - R_{2t}) - R_{1t} \text{ ----- (v)}$$

in general.

$$D_{nt} = M_{nt} - M_{n+1, t+n} - R_{n+1, t+n} \text{ ----- (vi)}$$

for $n = 1, 2, 3, 4, 5, 6$.

Equation (vi) was the equation used to obtain data on drop-out for the grades one to seven together with data on enrolment (Table 1) and on repeaters Table 2).

In projecting enrolment for primary education system, it is easier to deal with the nation rather than a district because the former is closed and that it is easier to monitor in-migration element which is generally small as opposed to Nairobi where in-migration occurs much more often and not recorded at all.

An enrolment projection is preceded by a demographic projection of the number of children who reach the prescribed age to enter the school system. In our case, the age of entry into primary school system is age 6 as it is the age that has been prescribed by the government.

Once the number of entrants into the system are forecast, they are moved through the system according to the flow rates that prevail in the system. The flow is determined by the promotion, repetition and drop-out rates.

The number completing the highest standard of the system is determined by the following;

(a) The number entering the first stage of the system. In this case, it will be limited to the number enrolling in standard one for the first time.

(b) The number promoted from standard one to standard two and from standard two to standard three and so on to the final class of the primary school system.

(c) The number who repeat the grade.

(d) The number who drop-out of the system at a given class.

In order to achieve the number completing the highest standard, the "enrolment flow model" is used. In applying the model to the Kenyan situation, it has been assumed that the enrolment rate already computed earlier on this to be used and that they are to remain constant over the period to the year 2000.

Mathematical form of the flow model

To estimate the enrollments by standard for the following year, we multiply the enrolment by standard in the previous year by promotion, repetition and drop-out rates and add in new enrollments coming into the standard during the year.

$$Z(t+1) = A(t) * Z(t) + a(t+1) \text{-----(vii)}$$

i.e enrolment by standard = $A(p, r \text{ and rates})$

multiplied in the following year (t+1) by

$$Z(\text{enrolment}) + a(\text{entrants})$$

Equation (vii) can be represented by a matrix equation

$$A_t * Z_t + a_{t+1} = Z_{t+1}$$

r1t	0	0	0	0	0	0	Z1t	a1,t+1	Z1,t+1
p1t	r2t	0	0	0	0	0	Z2t	a2,t+1	Z2,t+1
0	P2t	r3t	0	0	0	0	Z3t	a3,t+1	Z3,t+1
0	0	P3t	r4t	0	0	0	Z4t	+ a4,t+1 =	Z4,t+1
0	0	0	P4t	r5t	0	0	Z5t	a5,t+1	Z5,t+1
0	0	0	0	P5t	r6t	0	Z5t	a6,t+1	Z6,t+1
d1t	d2t	d3t	d4t	d5t	d6t	1.00	Zdt	0	Zd,t+1

At	Zt	at + 1	Zt + 1
----	----	--------	--------

The elements of the matrix A_t are the rates which were computed earlier. Hence on substitution, the matrix A_t becomes:

0.032	0	0	0	0	0	0
0.926	0.045	0	0	0	0	0
0	0.920	0.059	0	0	0	0
0	0	0.911	0.068	0	0	0
0	0	0	0.874	0.076	0	0
0	0	0	0	0.857	0.103	0
0	0	0	0	0	0.762	0
0.042	0.035	0.030	0.058	0.067	0.135	1.0

For each year, the elements of the matrix z_t are the enrolment by class. For example, Z_1 would be the enrolment for each year.

Tabulation method for the data analysis has been employed as it has been found to be most convenient in producing an ordered pattern of numerical data and facilitates a better understanding

of such kind of data.

3.3 DATA LIMITATION

Data on enrolment by age were not available for all the years under study, it was not going to be easy to compute rates of scholastic acceleration and retardation for each individual class.

Most data on education in the Ministry of Education in general and Nairobi City Education Department in particular is found at divisional level. This suggests that lack of data at sub-divisional level precludes attempts to apply them at that level hence the difficulty of interpreting word data for this fact made analysis at this level highly generalised.

The example of a generalised analysis where in a particular division only two schools in the region experience diverse socio-economic status.

The mathematical model used for the estimation of drop-outs require that, for example the estimation of drop-outs in standard seven, data on enrolment in the following class i.e standard eight or ~~form~~ one.

Before the 8.4.4. system of education was introduced form one was to next class after standard seven which was the entry point in secondary school level. To be able to estimate the drop outs in standard seven in every year therefore means considering the enrollments in form one. Data on enrolment in post primary institution may not be reliable due to the diversity of such institutions i,e Government secondary schools, private schools, youth polytechnic, harambee schools. Data on enrolment in youth polytechnic and harambee schools are not available.

CHAPTER FOUR.

RESULTS & DISCUSSIONS

TABLE 4(a). ENROLMENT BY CLASS 1974 - 1979.

YEAR	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7
1974	13985	13041	12696	11152	10341	9694	8091
1975	13171	13549	12583	12072	10361	10160	8218
1976	13091	12835	13071	12075	11256	9670	9128
1977	13703	12859	12807	12670	11574	10903	8260
1978	13856	13610	12835	12673	12175	11426	9495
1979	15101	13854	13589	12740	12456	12303	10059
1980	15935	15098	14019	13555	12503	12692	10947
1981	17295	15951	14854	13789	13350	12830	11360
1982	17313	17307	15971	14739	13611	13416	11468
1983	17515	17035	16825	15499	14331	13612	11880
1984	18113	17390	16993	16324	14892	13914	12611
1985	18221	17858	16964	16435	15473	14195	13181
1986	19161	18520	17712	16612	15705	14903	13709
1987	20319	19455	18393	17400	16084	15401	14648
1988	20542	20407	19331	18271	16903	15713	15108

YEAR	STD 8
1985	11498
1986	11598
1987	11887
1988	12650

Source: Calculated from City council of Nairobi, Annual Reports of the city of the City Education Department, 1974 - 1988.

From the table, enrolment is highest in the standard one for all the years and the lowest in standard seven while from 1985 in standard eight, there has been a gradual and steady increase in enrolment in all the classes during the period under study.

The enrolment in standard one show a steady increase as opposed to the other districts where enrolments fluctuate with time. Enrolment in the city schools is strictly pegged to the available facilities, and hence any increament in enrolment would imply that additional facilities are provided.

4:2 PRIMARY SCHOOL ENROLMENT RATIO.

TABLE 4 (b).

PRIMARY SCHOOL POPULATION Vs PRIMARY SCHOOL AGE POPULATION

YEAR	SCHOOL GOING POP.	SCHOOL AGE.	ENROLMENT RATIO
1979	90102	123925	0.727
1980	94749	131580	0.720
1981	99429	139708	0.712
1982	103825	148338	0.790
1983	106697	157501	0.677
1984	110237	167230	0.659
1985	123825	177560	0.697
1986	127920	188528	0.679

1987	133587	200173	0.667
1988	138925	212538	0.654

Generally, enrolment in Nairobi is higher than in most of the districts. This can be attributed to the higher level of socio-economic status of majority of Nairobi residents than that of population in other districts; this means that in Nairobi there is there is greater desire to take children to school than in the rural districts. Although the enrolment ratio would be expected to be even higher in Nairobi, but it is apparent from table 4.b that the ratio declines with time. This decline implies the slow rate of increase in the educational facilities in the face of a high rate of growth in the primary school age population.

4:3 ENROLMENT RATIO BY CLASS:

TABLE 4 (c). ENROLMENT RATES BY CLASS 1979 -1988.

YEAR	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7
1979	77.65	81.16	82.09	83.94	79.51	98.83	70.79
1980	78.06	84.26	80.68	85.08	76.03	97.12	73.38
1981	80.70	84.80	81.43	82.45	77.33	93.53	72.54
1982	76.95	87.62	83.40	83.94	75.11	93.16	69.76
1983	74.16	82.18	83.69	84.09	75.33	90.04	68.84
1984	73.06	79.91	80.52	84.37	74.57	87.67	69.61
1985	70.00	77.23	76.57	80.91	73.80	85.20	69.31
1986	66.80	77.23	76.16	77.91	71.36	85.21	68.67
1987	70.84	77.28	75.34	77.73	69.60	83.89	67.89
1988	68.22	77.22	75.43	77.75	69.69	81.53	68.67

YEAR	STD 8
1985	64.32
1986	63.41
1987	60.34
1988	61.17

TABLE 4 (d). ARITHMETIC MEAN OF ENROLMENT RATIO BY CLASS:NAIROBI

STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7	STD 8
73.64	80.89	79.53	81.82	74.24	89.62	70.15	62.31

There has been a considerable increase in the school age population (6 - 13) yearsover the last one and a half decades. The 1962 census returned a total school age population of 71,180 in Nairobi which increased to 78,710 and 123925 in 1969 and 1979 respect and 123,925 in 1969 and 1979 respectively. This represents an increase of more than 50% in less than two decades and an average annual growth rate of 2.5 percent. The enormous increase in the school age population is an obstacle to the expansion in coverage (enrolment ratio) as analysis of this will reveal. Analysis of the enrolment patterns has been based on projection made by the Ministry of Finance and Planning Republic of Kenya, Kenya Statistical Digest, Vol. X No3, 1972. These projections are very close to the census figures which are on decennialinterval. The average enrolment ratio for Nairobi is ~~0.69~~. is 0.69, which probably suggests that many of the children whose parents were enumerated as resident in Nairobi during 1979 census on which the projection are based, lived with their mothers and attended schools in the rural areas. Wakajuma in his work found that there is out migration of children aged between 5 and 9 years and women in the 25 - 29 age bracket. This indicates some positive correlation in population movements within these two age groups, with a possibility of the later being the formers mother. Population out-flow experienced within these two age

brackets may be attributed to acute shortage of standard one places in major centres. The high cost of living coupled with the cost of fees may also place schooling beyond the reach of the poorest class of the the urban population. This is reflected in the rise in enrolment ratios to 92% in 1974 when primary education for the first four years of school was made free in Kenya. The significant rise in the numbers of pupils enrolled and consequently in enrolment ratio may, be due to the return of pupils who had previously dropped out of school and many more children entering standard one as is evident from statistical information on enrolment by age. However, population increases has played a more significant role in keeping the enrolment ratio low. While there has been a significant increase (54 percent) in the total number of pupils enrolled in the city schools in the decade 1979-1988, enrolment ratios have tended to decline. This is due in part to the counteracting influence of enormous annual increase in school age - population, and in part due to absorption of pupils in -migrating on transfer abruptly from other districts. The influence of the demographic factors on enrolment ratio is clearly manifested by the fact that even after free primary education was extended from standards (5) to (7) in 1978 - 1980, enrolment ratio still declined. It should be noted that a significant proportion (13 percent) of the school - going population is

aged 13 years and above (table 4 e).

4:4 PUPIL ENROLMENT IN NAIROBI BY CLASS AND AGE 1978.

TABLE 4 (e). ENROLMENT BY CLASS AND AGE.

AGE (YEARS)	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7
5	5.7	-	-	-	-	-	-
6	59.7	5.8	-	-	-	-	-
7	26.9	52.2	8.5	-	-	-	-
8	6.2	29.8	45.7	6.6	-	-	-
9	1.0	9.4	30.5	40.0	7.5	-	-
10	0.2	2.1	11.5	32.5	33.8	6.3	0.3
11	0.05	0.3	2.8	13.7	30.2	28.9	7.1
12	0.05	0.2	0.6	5.3	18.4	32.1	28.9
13	0.1	0.1	0.3	1.5	7.2	21.2	32.9
14+	0.07	0.07	0.08	0.5	2.9	11.5	30.8
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Computed from: Republic of Kenya, Ministry of Education Annual Report, 1978 (unpublished).

Although the assumed age of entry into standard one is six years, six years, only 60 percent of the pupils enrolled in that class in Nairobi were of this age in 1978, the rest were either under or over age. Similarly, only 29 percent of the total number of standard three

enrollees were 12 years, the age regarded eligible for the class, while 64 percent were 13 years and above. From the data on the age pattern of school attendance analysis will be made of the relative amount of progress in school grade advancement using scholastic retardation and acceleration rates.

TABLE 4 (f). RETARDATION AND ACCELERATION RATES

CLASS	SCHOLASTIC RETARDATION	SCHOLASTIC ACCELERATION
	RATE	RATE
1	7.8	5.7
2	12.2	5.8
3	15.2	8.5
4	20.9	6.6
5	28.5	7.5
6	32.7	6.3
7	30.8	7.4

The scholastic retardation rate is significantly larger than than the corresponding acceleration rate at each grade. The former rate increases with higher grades, reaching a maximum at standard seven, and slightly declining, an indication of wastage due, for instance, to repetition. It should also be noted that the rate could even be higher considering the influence of grade attrition. Overall, the estimated grade progression ratio is 0.77, which also indicates that there is wastage in the

form of drop - outs, who in turn lower the actual retardation rate. The loss of pupils who leave primary school before completing the prescribed course of seven years and undue retardation by some others is wastage in terms of both expenditure and limiting the chances of new entrants. In 1980, the total expenditure on City Council's educational facilities was estimated at K £ 5,862,373, or an average of K £ 65 (Ksh. 1,300) per pupil in that year. If a pupil is allowed to repeat, double the amount is spent on him/she in the same grade where he/she takes up a place which would have been allocated to a new entrant. Such wastage is expensive in a developing country like Kenya where resources are limited and particularly in the City of Nairobi where revenue sources are limited while the number of applicants for primary education far exceeds the enrollees. In 1980, there were 19,709 applications received for 1981 standard one intake in Nairobi City Council schools, of which only 16,657 (84 percent) were admitted. This underlines the problem of unsatisfied demand for city primary education. The City Council may therefore find it difficult to achieve its goals of having complete coverage, particularly in the prevailing conditions of a rapidly expanding population; free primary education and therefore limited revenue resources; and limited space in a rapidly expanding city where the land for school competing with more

economically satisfying land uses.

YEAR PROGRESSION	INITIAL COHORT ENROLLED IN STD 1	NUMBER COMPLETING STD 7 AFTER 7 / 8 YEARS	GRADE /GRESSION
	X	Y	Y/X
1981	17295	11360	0.65
1982	17313	11468	0.66
1983	17515	11880	0.67
1984	18113	12611	0.69
1985	18221	11498	0.63
1986	19161	11598	0.61
1987	20319	11887	0.59
1988	20542	12650	0.62

Sources: Annual Reports, 1975 - 1979.

4:7 REPEATERS PATTERN.

TABLE 3. (h). REPEATERS BY CLASS, 1975 - 1979.

YEAR	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7
1975	455	569	737	816	622	974	721
1976	492	658	836	809	783	882	907
1977	396	553	670	797	805	950	395
1978	435	602	765	964	950	1198	822
1979	419	570	751	806	889	1331	931

Sources: Annual Reports, 1975 - 1979.

It is a well known fact that all pupils admitted to

the first grade of educational cycle do not complete that cycle within the prescribed minimum period, some of them drop - out before the end of the cycle and others repeat one or more grades before either dropping out or completing the last grade of the cycle. In the flow of a cohort of pupil through an educational system, promotion, repetition and drop - out are events which are determined by educational factors (e.g examination results), by social factors (e.g migration), and by morbidity (e.g death). The number of pupils in a cohort who completes a given educational cycle is generally accepted as a measure of output, but it is necessary to analyse the path leading to the completion of a cycle, i.e, the observed process. process which reconstructs the student flow - in order to evaluate its dynamics. Repetition is one of the major components of educational wastage which accounts for increased costs

REPETITION AS % OF ENROLMENT IN EACH CLASS.

TABLE 4 (i). REPETITION RATES BY CLASS.

CLASS	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7
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%OF ENROLMENT	3.5	4.2	5.9	6.8	6.0	9.6	8.8
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Source: Computed from table 4:k.

Where it is shown that 6.4% of the available places in the enrolment were taken up by repeaters. From the table on repeaters, it is apparent that there are more repeaters in standard six than in any other class.

4:8 PROMOTION, REPETITION AND DROP - OUT PATTERNS.

TABLE 4:(J). PROMOTIONS, REPETITIONS AND DROP - OUTS 1975 - 1979.

YEAR		STD 1	STD 2	STD 3	STD 4	STD 5	STD 6
1975	ENROLLED	13171	13549	12583	12072	10361	10160
	REPEATED	492	658	836	809	783	882
	PROMOTED	12177	12235	11266	10473	8788	8221
	DROP-OUT	502	656	481	790	790	1057
1976	ENROLLED	13091	12835	13071	12075	11256	9670
	REPEATED	396	553	670	797	805	950
	PROMOTED	12306	12137	11873	10769	9953	7353
	DROP-OUT	389	145	528	509	498	1367
1977	ENROLLED	13703	12859	12807	12670	11574	10903
	REPEATED	435	602	765	964	950	1198
	PROMOTED	12306	12137	11873	10769	9953	7865
	DROP-OUT	962	120	169	937	671	1840
1978	ENROLLED	13856	13610	12835	12673	12175	11426
	REPEATED	419	570	751	806	889	1331
	PROMOTED	13008	12070	11709	11225	10228	8673
	DROP-OUT	429	970	375	642	1058	1422

4:9 PROMOTION, REPETITION AND DROP - OUT RATES.

TABLE 4:(k). PROMOTION, REPETITION AND DROP - OUT RATES 1975 - 1979.

YEAR		STD 1	STD 2	STD 3	STD 4	STD 5	STD 6
1975	ENROLLED	100	100	100	100	100	100
	REPEATED	0.037	0.049	0.065	0.067	0.076	0.087
	PROMOTED	0.925	0.903	0.895	0.868	0.848	0.809
	DROP-OUT	0.038	0.048	0.038	0.065	0.076	0.104
1976	ENROLLED	100	100	100	100	100	100
	REPEATED	0.030	0.043	0.052	0.066	0.072	0.098
	PROMOTED	0.940	0.946	0.908	0.892	0.884	0.760
	DROP-OUT	0.030	0.011	0.040	0.042	0.044	0.142
1977	ENROLLED	100	100	100	100	100	100
	REPEATED	0.032	0.047	0.060	0.076	0.082	0.110
	PROMOTED	0.898	0.944	0.927	0.850	0.860	0.721
	DROP-OUT	0.070	0.009	0.013	0.074	0.058	0.169
1978	ENROLLED	100	100	100	100	100	100
	REPEATED	0.030	0.042	0.059	0.064	0.073	0.116
	PROMOTED	0.939	0.887	0.912	0.886	0.840	0.759
	DROP-OUT	0.031	0.071	0.029	0.050	0.087	0.125

TABLE 4:(l). MEANS OF REPEATERS, PROMOTERS AND DROP - OUTS RATES

BY CLASS 1975 - 1979.

RATES	1	2	3	4	5	6		
REPEATER			.032	.045	.059	.068	.076	.103
DROP - OUT			.042	.035	.03	.058	.067	.135
PROMOTER			.926	.92	.911	.874	.857	.762

Source: Computed from table 4:k.

During the period 1975 - 1980, the largest number of drop - outs occurred in standard six while the drop - outs in the other classes fluctuated over the same period. Thus there was no distinct pattern of the order of drop - outs by class. However, there were cases when there were "drop in" i.e who joined the school system having previously dropped out of it. Drop - out rates are computed as ratios of drop - outs to total to total enrolment, the highest drop - out was recorded in standard six in 1977 of 0.12 and the lowest was 0.01 recorded in standard two in the same year.

4:9 PATTERNS ON PROMOTEES.

In any year and class, the total of promotees, repeaters and drop - outs is equal to total enrolment. The highest number of promotees for all the years was in standard one in 1978. Generally the number of promotees show a declining trend as one progresses along the education system i.e there are less and less promotees as the classes go up for the period 1975 - 1980. Promotion rates for the last grade of a cycle can be derived only if the data on successful completion of that grade are available. It seems, however, that the incidence of drop - out in such grades is very limited and that those pupils who do not complete the cycle successfully, repeat the following year unless they are entering a further type of educational

system to which they are admitted without having passed the final examination. Whatever the situation, drop - out at this stage is subject to reservation. In a reservation. In a situation where demand for primary school facilities by far exceeds its supply, incidence of repetition is very negligible and that that in the majority of cases, a pupil may opt to repeat in districts other than Nairobi. In the majority of cases, pupils are encouraged to move on to the upperclass after one year, and due to higher demand for places in various classes, repetition is very limited.

4.10 NAIROBI: PROJECTED POPULATION

In this section we shall project the whole population of Nairobi by five years age group, the primary school age population, and the school going population. The method used in the projection is described in chapter three. The results of the projected numbers are show in the tables that follow. The five year age groups are the transformed into single years of age using interpolation coefficients based on sprague formular, the results obtained are given in Appendix C. The school age population projection has been given by division to emphasize the need for increased number of educational facilities much closer to them. Presently there is criss crossing of pupils to schools in division not of their residence and this is due to

distribution of the schools as well as other facilities in them, hence leading students to go for better equipped schools even if the schools are in other division. The development of residential houses has normally not taken into account the provision of educational facilities, they are not self contained. Generally it can be said that planning has not been feared towards better distribution of educational facilities.

4:11. DIVISIONAL COHORT ANALYSIS.

In this section a cohort analysis is done for all the divisions for the period between 1974 - 1988. This period is chosen for its relatively recent and better STD 8 completeness of data than any other period. Then the two successive decades covered within the period can be used for the purpose of comparison. As expected Nairobi showed a markedly high enrolment in all the grades for both boys and girls. All cohorts showed enrolment of over 90 percent in all grades. There was however minimal over - enrolment. This observation is due to in-migration which keeps the enrolment at a very high levels. Repetitions and drop-outs are not encouraged due to the high demand for Nairobi schools. Those pupils who drop-out are replaced immediately by those who may have been short - listed.

20943 Another observation is that of the five divisions under 21985 study, the Northern division has the highest enrolment and this 23080 is so due to the fact that it has the highest population projected at 388,171 by 1988. The basic idea we get from this analysis is that high drop - outs may grossly interfere with the absorption of school age - population into school system. When the national school age population is analysed alone it may not adequately reflect the disparity in school enrolment at the divisional level.

4:12.PROJECTED ENROLMENT.

In projecting enrolment for primary school education system, it is easier to deal with the nation at large rather than a district or a province as unit of analysis as is the case ~~case~~ with this study, because for the national analysis the system is closed, i.e. there is no migration or that it is negligible. An enrolment projection is preceded by a demographic projection of the number of children who reach the prescribed age to enter the school system. In our case, the official age of entry into the primary school system is to be age six as it is the age that has been prescribed by the government. Once the number of entrants into the system are forecast, they are moved through the system according

to the flow rate that prevails in the system.

TABLE 4 (m).

YEAR	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7
1988	22173	21378	20383	19227	18006	17272	15434
1989	23276	22441	21398	20183	18902	18133	16202
1990	24435	23558	22462	21188	19844	19035	17009
1991	25651	24731	23580	22243	20831	19983	17855
1992	26928	25962	24754	23350	21867	20976	18744
1993	28268	27254	25986	24512	22956	22021	19676
1994	29674	28611	27280	25732	24099	23117	20656
1995	31152	30034	28637	27013	25298	24267	21684
1996	32703	31529	30062	28357	26557	25475	22764
1997	34330	33099	31558	29769	27879	26744	23897
1998	36039	34746	33129	31250	29266	28074	25086
1999	37833	36476	34778	32806	30723	29472	26334
2000	39716	38291	36509	34438	32253	30939	27645

YEAR	STD 8
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1988	12885
1989	13526
1990	14200
1991	14906
1992	15649
1993	16427
1994	17245
1995	18103
1996	19004
1997	19950
1998	20943
1999	21985
2000	23080

CHAPTER 5

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATION.

5.1 SUMMARY AND CONCLUSION.

The primary objective of this study was to project the Primary school population, and hence the population of Nairobi. This study therefore rotated a round the premise that Nairobi has been experiencing fast population growth over the last two decades or more, and that this has had a negative impact on the provision of primary education in the city.

The study aimed at examining population trends in Nairobi, in terms of fertility, mortality, migration, growth rate and age-sex structure. Analysis has also been made on demand for and supply of primary school age versus school going population, average land acreage available to different schools in relation to the school population; the size and distribution of teachers, plus their qualifications.

In analysing the population dynamics of Nairobi 1962, 1969, 1979 census data were found useful. It was found that Nairobi has been experiencing very rapid population growth rates in the period 1962-1969. Analysis of the demographic indices of fertility, mortality and migration revealed that all of them have in one way or another contributed to the high annual population growth rates in Nairobi. Examination of fertility measures showed an upward trend, in the period 1962-1977, mean live birth per woman aged 45-49 years rose by about 33 per cent from 30.61 to 6.15. Although the 1979 census provisional statistics show a decline of mean birth per woman to 4.95. Analysis of the age-sex structure revealed that the proportion of women in the reproductive age group 15-45 has risen, thus leading to an increase in births (absolute numbers) which more than offset the decline in mean births per-woman. In addition to the rise in fertility, mortality declined significantly in the period under

consideration. Crude death rates and infant mortality rates are estimated to have declined from 11. and 69.0 respectively in 1969 to 3.8 and 44.9 in 1977. All these natural factors have acted together to reinforce population growth in the city.

Migration is another important factor which has contributed towards population increase in Nairobi in 1962-1969 period, the intercensal average annual growth rate was 5.8 percent, of which natural increases was 3.1 percent as migration accounted for 2.7 percent. Furthermore 1979 census provisional results showed that 75 per cent of the city's residences are migrants mainly from rural Kenya. The continuing influx of rural migrants into the city has had an impact on its age structure. Nairobi's population is also becoming more youthful with an increasing proportion of children aged 0-14 years. In 1962 the proportion of this age group was 32.0 percent, increasing to 35.0 and 40.2 percent in 1969 and 1979 respectively. This is partly a consequence of an increasing proportion of children migrants and the dominance of reproductive age group 15-49 in the migrant population.

In examining the primary school enrolment patterns and trends, we realize that under the above demographic condition. The population trends has shown a dramatic increase in the youthful population in Kenya, there by affecting the demand for primary education and the capacity of the society to supply the demand in the last one and a half decade. This situation is much more serious in urban centers especially in Nairobi. A detailed examination of the primary school - age population (6 - 13 years) versus primary school going population revealed that it is becoming extremely difficult for the city education authorities to cope with the bulging numbers in this age group. In the period 1979 - 1988 the population in the age group 6 - 13 years rose from 123,925 to 191,873 representing an increase of about 55% in less than a decade. On the other projections reveals that by 1999 this primary school - age population will be about 327,373, which would indicate an increase of 70% over the 1988

figures.

This tremendous increase in the primary-school age population has tended to retard enrolment ratio despite

significant increase in the absolute numbers enrolled. In the decade 1979-1988 the total number of pupils enrolled in the city primary schools rose by about 60 percent whereas enrolment declined to 77 percent. It is most unlikely that the population growth would decline dramatically over the remaining period of the century, and should this be the case then the school age population will put a lot of strain on the educational facilities such that enrolment ratios will continue to decline.

Projections based on current rates of population growth indicate that there will be about 201,423 children age (6 - 13 years) in 1989 and this represents an increase of about 55 percent over the 1980 figures. From the observed trends enrolment in the same year is expected to almost double to about 154,061 pupils. This will necessitate almost doubling of the available teaching equipment all of which will mean increased expenditure on primary education in the city. But this situation will occur if there are sufficient public means to finance it. Already there are indications that the Nairobi City Commission, which caters for about 98% of the primary school enrollees is finding it almost impossible to absorb the growing number of entrants. This then indicates that the projected school going population 6 - 13 years out strips the supply of education.

The abolition of fees in primary schools has deprived the council of a large sum of money which used to finance education. The council currently depends on loans from the Ministry of Local Government, floating of stocks, and harambee fund-raising, all of

which are very uncertain means. In addition to this, is the problem of limited space for expansion, in a first growing city where land is required for other equally important purposes such as housing, administration and industry. Correlation analysis

revealed that there is no significant relationship between total land areas allocated to school and the school population. This is because schools close to the city centre are those in the high density Eastland regions, formerly designed for a much smaller number regardless of the available space (land acreage). On the

other hand schools further away from the city centre, mainly the peri-urban Northern and Southern division to the school population of the distribution of the teachers also a fair distribution among the different divisions.

Examination of the teaching force, revealed that generally Nairobi is adequately provided with qualified teachers and that every year there is an improvement of the quality of the teachers' qualifications. There are hardly any P4 teachers in the Nairobi's primary schools and that the P3 teachers comprises a very negligible proportion of the total number of teachers. The majority of teachers fall within P2 and S1. In 1988 90% of the total number of teachers were professionally qualified, and there was an overall tendency to have higher grade qualification holders going to the city schools.

The pupil/teacher ration of 33.3 prevailed, about whether the same trend will ~~continue~~ to the year 2000 in the prevailing circumstances of limitless increase school-age population, faced with limited resources is a question we cannot venture into at this juncture.

In identifying primary school primary school wastage through failures, drop-out and repetition. Examination of school-grade advancement in which a survival cohort analysis was done showed that there is wastage through retardation repetition and dropping out before completion. Incidentally, much bigger wastage was however, seem in terms of those who drop out of the educational system completely after Kenya National Primary Examination (KNPE) and do not engage in any productive work there after. This constitute 70 per-cent. The causes of such wastage are however, complex ranging from home background, through the school

environment to the entire educational system.

Educational facilities within the city can be said to be overstretched and this is evident from the long queues that are witnessed annually for standard one places, and also the large proportion of the primary school age population who are not in school. Through the effort of the Nairobi City Commission in attempting to satisfy the educational needs of the city residents are commendable, the demand is still far from being satisfied. The main problem with the provision of educational facilities in Nairobi is their distribution. Most estates are not self contained and as such do not have school, and this is more so with the new estates which necessitate the movement of pupils to school outside their estate or even to another division. This type of movement is also due to facilities in some of the school, well equipped school normally attract large number of pupils. There has been attempt to increase the pupil per class in the recent past to cope with the high demand, this has resulted into increasing the pupil/teacher ration to 33.3 in the present times from 32.5 in the early 80's.

Summarizing problems and prospects of primary education in Nairobi, it has been noted that all efforts have been made towards the examination of distribution of primary school vis-à-vis the school age population and that it reveals an attempt at satisfying a yearly growing demand for education. This demand will continue to increase during the next one or two decades as the projection reveals. If the population increase does not slow down, no more than 77 per cent of the children aged 6 - 13 years in Nairobi will be enrolled in school by 1989. The proportion may even decline, given the problem of resource constraints in terms of space and funds. Much more could be achieved in terms of coverage taken to curb the influx of migrants. The future growth of school enrolment (ratio) will therefore be determined to great extent by governmental policy regarding population increase, and the means of increasing primary education.

5.2 RECOMMENDATIONS.

The rapid changing urban situation have left national and local governments without consistent policy to deal with the resulting problems. Though there is growing awareness of urban problems, there is uncertainty as to the best method of tackling them. Most of the policy adopted tend to solve one problem while creating several others, hence the need to test some of the policy before implementation.

Primary education is a basic human right and a prerequisite for socio-economic development. As a matter of policy all those in primary school age do have access to the necessary educational facilities, and this can be achieved through planned expansion with demographic trends in mind, this would also call for a suitable population programme to ensure that there exists harmony in the demand for the facilities and their supply.

More school places should be made available every year to cater for ever increasing primary school population. Presently since the enrolment ratio is low, the short term measure would be the extension of already existing schools in the low density zone of Northern, Southern-~~and~~ Western divisions where there is ample space for expansion.

Long term forecasts concerning the school age population show that the required facilities in terms of land, classroom, teachers and materials can be prepared well in advance.

It is in this regard that my study becomes useful, such projection based on prevailing demographic situation should be incorporated in the planning so that educational facilities can be planned for well in advance. This would also provide the direction in which the distribution of these facilities are done.

Lastly, the Government should take the role of financing primary education.

Although universal primary education is necessary for accelerating several aspects of socio-economic development, there

are other sectors of the economy which equally need immediate attention, so that the limitless proportions of the nations resources cannot be continuously allowed to be absorbed by the educational sector. Similarly expansion of schools in the city should be consistent with that of the rural areas in order to discourage rural-urban migration. In addition, too much attention to quantitative element might lead to a situation where quality of education is sacrificed. It is therefore important that limitless increase in school-age population is regarded as a serious problem and programmes and policies designed to curb the factor contributing to the increase. Attention should be paid to high fertility and in-migration into the city so that effective measures are taken to divert the trend. Such measures include, population education and economic measures to redress the great disparities within the Nation.

It is true that this study could not tackle exhaustively all those areas that have crucial link to Education. Further studies should be undertaken on areas of school wastage and performance particularly at the National examination.

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APPENDIX A

A COHORT SURVIVAL ANALYSIS

CENTRAL DIVISION

YEAR	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7
1974	2940	2938	2819	2431	2257	2230	1902
1975	2869	2873	2845	2706	2324	2278	1946
1976	2963	2873	2860	2744	2528	2197	2031
1977	2990	2948	2844	2858	2644	2501	1862
1978	2908	2932	2948	2829	2725	2663	2194
1979	3105	2896	2938	2929	2763	2767	2323
1980	3249	3133	2950	2899	2923	2830	2399

YEAR

1974	100						
1975	100	97.72108					
1976	100	100.1394	97.27891				
1977	100	99.49375	99.12861	97.17687			
1978	100	98.0602	99.49375	98.60578	92.68707		
1979	100	99.58734	98.26086	98.85251	96.30533	94.11564	
1980	100	100.9017	101.4442	96.95652	98.65001	98.64064	81.59863

WESTERN DIVISION

YEAR	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7
1974	2318	2308	2394	2134	1958	1803	1574
1975	2442	2391	2264	2315	2012	1897	1544
1976	2326	2398	2344	2159	2236	1855	1746
1977	2461	2289	2399	2244	2140	2123	1669
1978	2457	2452	2297	2358	2235	2126	1918
1979	2610	2496	2468	2289	2375	2298	1894
1980	2567	2621	2505	2443	2287	2409	2017

YEAR

1974	100						
1975	100	103.1492					
1976	100	98.19819	101.1216				
1977	100	98.40928	98.23914	96.80759			
1978	100	99.63429	98.75322	96.56019	96.41932		
1979	100	101.5873	100.2844	98.40928	97.25634	99.13718	
1980	100	100.4214	101.9536	99.26859	98.3233	98.64864	87.01466

EASTERN DIVISION

YEAR	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7
1974	3876	3546	3461	3258	2950	2838	2311
1975	3446	3558	3315	3259	2935	2835	2386
1976	3428	3253	3340	3071	2972	2709	2575
1977	3512	3393	3167	3229	2926	2845	2342
1978	3746	3506	3383	3117	3153	2895	2543
1979	3903	3689	3453	3347	3062	3157	2660
1980	4077	3876	3679	3495	3322	3150	2931

YEAR

1974	100						
1975	100	91.79566					
1976	100	94.3993	86.17131				
1977	100	98.97899	91.90365	83.30757			
1978	100	99.82915	98.68728	90.45269	81.34674		
1979	100	98.47837	98.32004	97.6371	88.85664	81.44994	
1980	100	99.30822	98.21142	99.51594	96.90781	91.4103	75.61919

SOUTHERN DIVISION

YEAR	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7
1974	2062	1946	1837	1598	1522	1377	1179
1975	1992	2048	1969	1787	1548	1534	1147
1976	1965	2005	2018	2003	1718	1498	1299
1977	2068	1868	2036	2002	1890	1761	1205
1978	1966	2069	1888	2041	1930	1874	1367
1979	2427	1948	2085	1893	2003	1949	1562
1980	2672	2407	2009	2044	1888	2020	1700

YEAR

1974	100						
1975	100	99.32104					
1976	100	100.6526	97.86614				
1977	100	95.06361	102.2088	97.092			
1978	100	99.56689	96.08142	102.4598	93.59844		
1979	100	99.08443	100.3368	96.33597	100.5522	94.51988	
1980	100	99.17593	102.1871	98.36381	95.77608	101.4056	82.44422

NORTHERN DIVISION

YEAR	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7
1974	2791	2302	2185	1730	1654	1446	1125
1975	2422	2679	2190	2005	1541	1616	1196
1976	2409	2306	2507	2099	1802	1412	1477
1977	2664	2362	2360	2337	1973	1674	1181
1978	2779	2651	2319	2328	2132	1868	1473
1979	3055	2825	2646	2281	2252	2132	1622
1980	3388	3060	2874	2672	2197	2281	1898

YEAR

1974	100						
1975	100	95.9871					
1976	100	95.21056	89.82443				
1977	100	98.04898	97.44013	83.73342			
1978	100	99.51201	96.264	96.1189	76.38839		
1979	100	101.6552	99.32432	94.68659	92.981	76.38839	
1980	100	100.1636	103.4184	100.3003	91.19966	94.17836	68.00429

NAIROBI

YEAR	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7
1974	13985	13041	12696	11152	10341	9694	8091
1975	13171	13549	12583	12072	10361	10160	8218
1976	13091	12835	13071	12075	11256	9670	9128
1977	13703	12859	12807	12670	11574	10903	8260
1978	13856	13610	12835	12673	12175	11426	9495
1979	15101	13854	13589	12740	12456	12303	10059
1980	15935	15098	14019	13555	12503	12692	10947

YEAR	100						
1974	100						
1975	100	96.88237					
1976	100	97.44894	93.46442				
1977	100	98.22779	97.23635	90.59706			
1978	100	96.32131	98.04445	96.21896	89.05756		
1979	100	99.98556	99.16806	97.31876	94.5714	87.97282	
1980	100	99.98013	101.1763	98.91994	95.50836	96.36322	78.27672

CENTRAL DIVISION.

YEAR	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7	STD 8
1981	3617	3277	3159	2955	2854	2914	2515	
1982	3473	3662	3190	3108	2897	2877	2561	
1983	3548	3444	3590	3128	2968	2918	2553	
1984	3801	3448	3419	3381	2933	2921	2735	
1985	3634	3780	3320	3304	3164	2762	2757	2530
1986	3762	3662	3676	3326	3152	3055	2752	2473
1987	3882	3922	3670	3591	3254	3093	3032	2470
1988	3947	3985	3918	3610	3428	3131	3010	2708

YEAR	100							
1981	100							
1982	100	101.2441						
1983	100	99.16499	99.25353					
1984	100	97.18151	98.44515	93.47526				
1985	100	99.44751	93.57384	95.13389	87.47581			
1986	100	100.7705	96.71139	93.74295	90.75727	84.46226		
1987	100	104.2531	100.9906	94.47514	91.71364	89.05845	83.82638	
1988	100	102.6533	104.1467	99.33957	90.18679	88.24690	86.66859	74.86868

EASTERN DIVISION

YEAR	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7	STD 8
1981	4233	4029	3898	3616	3486	3391	2931	
1982	4318	4235	4018	3703	3557	3492	3036	
1983	4187	4196	4061	3771	3541	3524	3134	
1984	4270	4134	4113	3860	3616	3440	3283	
1985	4155	4104	3980	3910	3592	3433	3221	2993
1986	4422	4060	4003	3799	3652	3422	3298	2942
1987	4555	4401	3968	3820	3598	3504	3397	2908

1988	4721	4525	4298	3960	3698	3510	3464	2950
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YEAR

1981	100							
1982	100	100.0472						
1983	100	97.17462	95.93669					
1984	100	98.73418	95.25243	91.18828				
1985	100	96.11241	95.05613	90.55118	84.85708			
1986	100	97.71360	93.74707	90.73322	84.57619	80.84101		
1987	100	99.52510	95.49940	89.46136	85.93265	81.14868	80.25041	
1988	100	99.34138	97.19584	95.30686	86.60422	83.93091	80.22233	69.69053

SOUTHERN DIVISION

YEAR	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7	STD 8
1981	3201	2680	2352	1966	2004	1984	1808	
1982	2957	3103	2670	2360	1960	2058	1735	
1983	2835	2959	2941	2569	2295	1981	1799	
1984	2938	2912	2982	2892	2449	2140	1862	
1985	3016	2915	2847	2906	2754	2293	1987	1650
1986	2981	3038	2857	2787	2815	2597	2197	1744
1987	3240	3007	3064	2819	2643	2767	2572	1863
1988	3203	3286	3070	3005	2758	2638	2692	2190

YEAR

1981	100							
1982	100	96.93846						
1983	100	100.0676	91.87754					
1984	100	102.7160	100.8455	90.34677				
1985	100	99.21715	100.4233	98.27528	86.03561			
1986	100	100.7294	97.24302	98.30688	95.19784	81.13090		
1987	100	100.8722	101.5915	95.94963	93.22751	93.57457	80.34989	
1988	100	101.4198	102.9856	99.63528	93.87338	93.05115	91.03821	68.41612

NORTHERN DIVISION

YEAR	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7	STD 8
1981	3719	3420	3011	2784	2611	2262	1932	
1982	3876	3731	3460	2925	2704	2528	1968	
1983	4154	3659	3562	3372	2770	2610	2119	
1984	4296	4146	3729	3547	3285	2744	2355	
1985	4574	4289	4071	3620	3376	3092	2666	2150
1986	5100	4924	4414	4036	3446	3337	3016	2252
1987	5646	5242	4896	4464	3994	3450	3246	2539
1988	5793	5601	5208	4917	4398	3876	3482	2680

YEAR

1981	100								
1982	100	100.3227							
1983	100	94.40144	95.77844						
1984	100	99.80741	96.20743	95.37510					
1985	100	99.83706	98.00193	93.39525	90.77709				
1986	100	107.6519	102.7467	97.15936	88.90609	89.72842			
1987	100	102.7843	107.0398	103.9106	96.14829	89.00929	87.28153		
1988	100	99.20298	102.1176	107.4989	102.3743	93.30766	89.83488	72.06238	

WESTERN DIVISION

YEAR	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7	STD 8
1981	2525	2545	2634	2468	2395	2279	2174	
1982	2689	2576	2633	2643	2493	2461	2168	
1983	2781	2777	2671	2666	2757	2571	2275	
1984	2807	2751	2750	2644	2609	2669	2373	
1985	2842	2770	2746	2695	2587	2579	2550	2175
1986	2896	2836	2762	2664	2640	2492	2446	2157
1987	2996	2883	2795	2706	2595	2587	2401	2107
1988	2879	3010	2837	2779	2621	2558	2461	2122

YEAR

1981	100							
1982	100	102.0198						
1983	100	103.2726	105.7822					
1984	100	98.92125	102.2685	104.7129				
1985	100	98.68187	98.74146	100.2231	102.4554			
1986	100	99.78888	98.39686	95.79288	98.17776	98.69307		
1987	100	99.55110	98.34624	96.40185	93.31176	96.20677	95.08911	
1988	100	100.4673	97.96271	97.78325	93.37371	91.98130	91.52101	84.03960

NAIROBI

YEAR	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7	STD 8
1981	17295	15951	14854	13789	13350	12830	11360	
1982	17313	17307	15971	14739	13611	13416	11468	
1983	17515	17035	16825	15499	14331	13612	11890	
1984	18113	17390	16993	16324	14892	13914	12611	
1985	18221	17858	16964	16435	15473	14195	13181	11498
1986	19161	18520	17712	16612	15705	14903	13709	11598
1987	20319	19455	18393	17400	16084	15401	14648	11987
1988	20542	20407	19331	18271	16903	15713	15108	12650

YEAR

1981	100								
1982	100	100.0694							
1983	100	98.39427	97.28245						
1984	100	99.28633	98.15168	94.38566					
1985	100	98.59217	96.85413	94.92867	89.46516				
1986	100	101.6410	97.78612	94.84442	90.71218	86.16941			
1987	100	101.5344	100.9440	96.06360	91.82986	88.95628	84.69500		
1988	100	100.4331	100.8872	100.2744	93.31972	89.71168	87.26391	73.14253	

TABLE 1; NAIROBI:		PROJECTED POPULATION.				APPENDIX B	
AGE	1980	1981	1982	1983	1984	1985	1986
0 - 4	129082.1	135506.8	142251.2	149331.4	156763.9	164566.4	172757.2
5 - 9	94065.88	98747.74	103662.6	108822.1	114238.4	119924.3	125893.2
10 - 14	71920.94	75500.59	79258.42	83203.28	87344.48	91691.80	96255.49
15 - 19	91850.86	96422.47	101221.6	106259.6	111548.4	117100.4	122928.7
20 - 24	139627.0	146576.6	153872.0	161530.5	169570.2	178010.1	186870.1
25 - 29	113293.5	118932.4	124851.9	131066.0	137589.4	144437.6	151626.5
30 - 34	77019.68	80853.11	84877.34	89101.87	93536.65	98192.17	103079.4
35 - 39	47083.33	49426.77	51886.84	54469.36	57180.41	60026.40	63014.04
40 - 44	35377.32	37138.12	38986.57	40927.01	42964.03	45102.44	47347.29
45 - 49	25327.85	26588.47	27911.84	29301.07	30759.44	32290.41	33897.57
50 - 54	16979.01	17824.10	18711.24	19642.54	20620.19	21646.50	22723.89
55 - 59	10284.62	10796.50	11333.87	11897.98	12490.17	13111.83	13764.43
60 - 64	5897.620	6191.157	6499.304	6822.788	7162.372	7518.858	7893.058
65 - 69	4120.356	4325.434	4540.720	4766.721	5003.971	5253.029	5514.484
70 - 74	2393.480	2512.609	2637.667	2768.949	2906.765	3051.441	3203.318
75+	2822.837	2963.336	3110.827	3265.660	3428.198	3598.827	3777.948
AGE	1987	1988	1989	1990	1991	1992	1993
0 - 4	181355.7	190382.1	199857.9	209805.2	220247.6	231209.8	242717.6
5 - 9	132159.2	138737.0	145642.3	152891.2	160500.9	168489.4	176875.4
10 - 14	101046.3	106075.6	111355.2	116897.6	122715.8	128823.7	135235.5
15 - 19	129047.2	135470.1	142212.7	149291.0	156721.5	164521.8	172710.4
20 - 24	196171.0	205934.8	216184.6	226944.6	238240.1	250097.8	262545.7
25 - 29	159173.3	167095.7	175412.4	184143.0	193308.2	202929.6	213029.8
30 - 34	108209.9	113595.7	119249.6	125184.9	131415.6	137956.5	144822.9
35 - 39	66150.38	69442.83	72899.14	76527.49	80336.42	84334.93	88532.46
40 - 44	49703.86	52177.73	54774.72	57500.98	60362.92	63367.31	66521.24
45 - 49	35584.72	37355.85	39215.13	41166.95	43215.91	45366.86	47624.86
50 - 54	23854.90	25042.21	26288.62	27597.06	28970.62	30412.55	31926.25
55 - 59	14449.52	15168.70	15923.68	16716.23	17548.24	18421.65	19338.53
60 - 64	8285.944	8698.352	9131.288	9585.771	10062.88	10563.73	11089.50
65 - 69	5788.951	6077.080	6379.549	6697.072	7030.400	7380.317	7747.651
70 - 74	3362.754	3530.125	3705.827	3890.274	4083.901	4287.165	4500.547
75+	3965.985	4163.380	4370.600	4588.134	4816.495	5056.223	5307.881
AGE	1994	1995	1996	1997	1998	1999	2000
0 - 4	254798.2	267480.0	280793.1	294768.8	309440.0	324841.5	341009.5
5 - 9	185678.9	194920.5	204622.1	214806.6	225498.0	236721.5	248503.6
10 - 14	141966.5	149032.4	156450.1	164236.9	172411.4	180992.6	190001.0
15 - 19	181306.6	190330.6	199803.8	209748.4	220188.1	231147.3	242652.0
20 - 24	275613.2	289331.0	303731.6	318849.0	334718.8	351378.4	368867.3
25 - 29	223632.8	234763.4	246448.1	258714.3	271591.1	285108.8	299299.2
30 - 34	152031.0	159597.9	167541.4	175880.3	184634.2	193823.9	203470.9
35 - 39	92938.91	97564.67	102420.7	107518.4	112869.8	118487.5	124384.9
40 - 44	69832.14	73307.83	76956.52	80786.80	84807.73	89028.79	93459.94
45 - 49	49995.25	52483.62	55095.84	57838.08	60716.80	63738.80	66911.22
50 - 54	33515.28	35183.41	36934.56	38772.87	40702.68	42729.54	44855.23
55 - 59	20301.05	21311.48	22372.20	23485.71	24654.64	25881.75	27169.94
60 - 64	11641.45	12220.87	12829.13	13467.66	14137.98	14841.65	15580.36
65 - 69	8133.268	8538.078	8963.036	9409.146	9877.459	10369.08	10885.17
70 - 74	4724.548	4959.699	5206.554	5465.695	5737.734	6023.313	6323.106
75+	5572.066	5849.399	6140.536	6446.164	6767.003	7103.811	7457.382

TABLE 2: DAGORETTI PROJECTION

AGE	1980	1981	1982	1983	1984	1985	1986
0 - 4	21625.31	22701.64	23831.55	25017.70	26262.88	27570.04	28912.26
5 - 9	16797.40	17633.45	18511.10	19432.44	20399.63	21414.96	22480.93
10 - 14	13040.27	13689.31	14370.66	15085.91	15836.77	16625.00	17452.46
15 - 19	13977.72	14673.42	15403.74	16170.42	16975.26	17820.15	18707.10
20 - 24	18298.58	19209.34	20165.43	21169.10	22222.73	23328.80	24489.93
25 - 29	15986.98	16782.69	17617.99	18494.88	19415.41	20381.75	21396.20
30 - 34	11729.10	12312.89	12925.72	13569.06	14244.43	14953.40	15697.66
35 - 39	7776.712	8163.775	8570.103	8996.656	9444.438	9914.508	10407.97
40 - 44	5595.285	5873.774	6166.125	6473.026	6795.202	7133.413	7488.458
45 - 49	3918.799	4113.846	4318.601	4533.547	4759.191	4996.066	5244.731
50 - 54	2828.086	2968.846	3116.612	3271.732	3434.573	3605.519	3784.973
55 - 59	1974.621	2072.902	2176.075	2284.383	2398.082	2517.439	2642.737
60 - 64	1210.387	1270.631	1333.873	1400.262	1469.956	1543.119	1619.924
65 - 69	927.9985	974.1870	1022.674	1073.575	1127.009	1183.103	1241.988
70 - 74	682.3519	716.3140	751.9664	789.3934	828.6831	869.9284	913.2266
75+	799.9263	839.7404	881.5360	925.4119	971.4716	1019.824	1070.583
AGE	1987	1988	1989	1990	1991	1992	1993
0 - 4	30382.78	31894.99	33482.47	35148.97	36898.40	38734.91	40662.93
5 - 9	23599.75	24774.36	26007.43	27301.87	28660.75	30087.25	31584.76
10 - 14	18321.11	19232.99	20190.26	21195.17	22250.10	23357.53	24520.08
15 - 19	19638.19	20615.62	21641.70	22718.86	23849.62	25036.67	26282.80
20 - 24	25708.84	26988.43	28331.70	29741.83	31222.14	32776.13	34407.47
25 - 29	22461.13	23579.07	24752.65	25984.64	27277.95	28635.63	30060.89
30 - 34	16478.97	17299.16	18160.18	19064.05	20012.91	21008.99	22054.65
35 - 39	10926.00	11469.81	12040.69	12639.98	13269.10	13929.53	14622.83
40 - 44	7861.175	8252.442	8663.183	9094.368	9547.014	10022.19	10521.01
45 - 49	5505.772	5779.806	6067.479	6369.470	6686.492	7019.293	7368.658
50 - 54	3973.359	4171.122	4378.727	4596.666	4825.451	5065.624	5317.751
55 - 59	2774.272	2912.353	3057.307	3209.476	3369.218	3536.911	3712.951
60 - 64	1700.551	1785.191	1874.043	1967.318	2065.236	2168.027	2275.934
65 - 69	1303.805	1368.698	1436.821	1508.334	1583.407	1662.217	1744.949
70 - 74	958.6798	1006.395	1056.486	1109.069	1164.270	1222.218	1283.051
75+	1123.868	1179.805	1238.526	1300.170	1364.883	1432.816	1504.130
AGE	1994	1995	1996	1997	1998	1999	2000
0 - 4	42686.71	44811.32	47041.67	49383.03	51840.93	54421.16	57129.92
5 - 9	33156.80	34807.08	36539.50	38358.15	40267.32	42271.51	44375.45
10 - 14	25740.50	27021.86	28366.58	29778.45	31260.58	32816.49	34449.83
15 - 19	27590.95	28964.21	30405.82	31919.18	33507.86	35175.62	36926.38
20 - 24	36120.00	37917.77	39805.02	41786.20	43865.98	46049.28	48341.25
25 - 29	31557.08	33127.74	34776.58	36507.48	38324.54	40232.03	42234.47
30 - 34	23152.36	24304.70	25514.40	26784.30	28117.41	29516.88	30985.99
35 - 39	15350.64	16114.67	16916.73	17758.71	18642.60	19570.48	20544.55
40 - 44	11044.67	11594.38	12171.46	12777.26	13413.21	14080.82	14781.65
45 - 49	7735.412	8120.419	8524.590	8948.877	9394.281	9861.854	10352.70
50 - 54	5582.427	5860.276	6151.954	6458.150	6779.586	7117.020	7471.249
55 - 59	3897.752	4091.752	4295.407	4509.198	4733.630	4969.233	5216.562
60 - 64	2389.212	2508.128	2632.963	2764.011	2901.582	3046.000	3197.606
65 - 69	1831.799	1922.971	2018.681	2119.155	2224.630	2335.355	2451.590
70 - 74	1346.911	1413.949	1484.324	1558.202	1635.757	1717.173	1802.640
75+	1578.994	1657.584	1740.085	1826.693	1917.611	2013.055	2113.249

TABLE 3; KIBERA PROJECTION

AGE	AGE	AGE	AGE	AGE	AGE	AGE	AGE
0 - 4	22323.4	23434.48	24600.87	25825.30	27110.68	28460.04	29876.55
5 - 9	15598.56	16374.93	17189.95	18045.53	18943.69	19886.56	20876.36
10 - 14	11673.46	12254.47	12864.40	13504.69	14176.85	14882.46	15623.19
15 - 19	16748.06	17581.65	18456.72	19375.35	20339.70	21352.05	22414.79
20 - 24	26387.07	27700.41	29079.12	30526.45	32045.81	33640.80	35315.17
25 - 29	20310.99	21321.91	22383.15	23497.20	24666.71	25894.42	27183.24
30 - 34	13084.35	13735.59	14419.23	15136.91	15890.31	16681.20	17511.46
35 - 39	7920.53	8314.751	8728.594	9163.035	9619.098	10097.86	10600.45
40 - 44	5618.38	5898.019	6191.575	6499.743	6823.249	7162.857	7519.367
45 - 49	3933.496	4129.274	4334.797	4550.549	4777.039	5014.803	5264.400
50 - 54	2616.032	2746.237	2882.923	3026.413	3177.044	3335.172	3501.170
55 - 59	1542.115	1618.869	1699.444	1784.029	1872.824	1966.038	2063.892
60 - 64	936.3967	983.0031	1031.929	1083.291	1137.208	1193.809	1253.228
65 - 69	630.913	662.3149	695.2797	729.8852	766.2131	804.3492	844.3533
70 - 74	357.9722	375.7892	394.4931	414.1278	434.7398	456.3777	479.0926
75+	395.764	415.4620	436.1404	457.8481	480.6361	504.5584	529.6713
AGE	1987	1988	1989	1990	1991	1992	1993
0 - 4	31363.57	32924.61	34563.33	36283.62	38089.53	39985.33	41975.48
5 - 9	21915.42	23006.19	24151.26	25353.32	26615.21	27939.90	29330.53
10 - 14	16400.79	17217.09	18074.02	18973.61	19917.96	20909.32	21950.02
15 - 19	23530.42	24701.58	25931.03	27221.67	28576.55	29998.87	31491.97
20 - 24	37072.88	38918.08	40855.11	42888.56	45023.21	47264.11	49616.55
25 - 29	28536.21	29956.52	31447.52	33012.73	34655.84	36380.73	38191.48
30 - 34	18383.04	19298.00	20258.51	21266.81	22325.31	23436.49	24602.97
35 - 39	11128.06	11681.93	12263.36	12873.73	13514.49	14187.13	14893.25
40 - 44	7893.622	8286.504	8698.941	9131.905	9586.420	10063.56	10564.44
45 - 49	5526.420	5801.482	6090.234	6393.358	6711.569	7045.618	7396.293
50 - 54	3675.431	3858.365	4050.404	4252.001	4463.632	4685.796	4919.018
55 - 59	2166.616	2274.453	2387.657	2506.496	2631.250	2762.213	2899.694
60 - 64	1315.604	1381.084	1449.824	1521.984	1597.737	1677.259	1760.740
65 - 69	886.4101	930.5286	976.8429	1025.462	1076.502	1130.082	1186.328
70 - 74	502.9381	527.9704	554.2485	581.8347	610.7938	641.1943	673.1079
75+	556.0342	583.7092	612.7616	643.2600	675.2765	708.8864	744.1692
AGE	1994	1995	1996	1997	1998	1999	2000
0 - 4	44064.69	46257.89	48560.24	50977.18	53514.43	56177.95	58974.05
5 - 9	30790.37	32322.87	33931.65	35620.50	37393.41	39254.56	41208.34
10 - 14	23042.52	24189.40	25393.35	26657.23	27984.02	29376.85	30838.99
15 - 19	33059.40	34704.83	36432.16	38245.47	40149.03	42147.33	44245.09
20 - 24	52086.07	54678.50	57399.97	60256.88	63256.00	66404.38	69709.47
25 - 29	40092.35	42087.83	44182.63	46381.69	48690.21	51113.62	53657.65
30 - 34	25827.51	27113.00	28462.47	29879.11	31366.26	32927.42	34566.29
35 - 39	15634.52	16412.69	17229.58	18087.13	18987.37	19932.41	20924.49
40 - 44	11090.25	11642.24	12221.70	12830.00	13468.57	14138.93	14842.66
45 - 49	7764.422	8150.873	8556.560	8982.438	9429.512	9898.839	10391.53
50 - 54	5163.848	5420.864	5690.672	5973.908	6271.242	6583.375	6911.044
55 - 59	3044.018	3195.525	3354.573	3521.537	3696.811	3880.809	4073.966
60 - 64	1848.376	1940.373	2036.950	2138.333	2244.763	2356.489	2473.777
65 - 69	1245.374	1307.359	1372.429	1440.738	1512.446	1587.724	1666.748
70 - 74	706.6099	741.7794	778.6993	817.4568	858.1433	900.8549	945.6924
75+	781.2080	820.0904	860.9080	903.7572	948.7391	995.9599	1045.531

TABLE 4; MAKADARA PROJECTION

AGE	1980	1981	1982	1983	1984	1985	1986
0 - 4	26243.25	27549.43	28920.63	30360.07	31871.15	33457.44	35122.69
5 - 9	20145.12	21147.79	22200.35	23305.31	24465.27	25682.96	26961.25
10 - 14	16154.94	16959.01	17803.09	18689.19	19619.39	20595.89	21620.99
15 - 19	19027.11	19974.13	20968.28	22011.92	23107.50	24257.61	25464.96
20 - 24	25852.73	27139.47	28490.26	29908.28	31396.88	32959.57	34600.04
25 - 29	20352.98	21365.99	22429.42	23545.78	24717.70	25947.96	27239.44
30 - 34	14346.18	15060.22	15809.80	16596.69	17422.74	18289.90	19200.23
35 - 39	8699.461	9132.452	9586.993	10064.16	10565.07	11090.92	11642.94
40 - 44	6892.803	7235.872	7596.017	7974.087	8370.974	8787.615	9224.993
45 - 49	5002.164	5251.132	5512.492	5786.861	6074.885	6377.245	6694.653
50 - 54	2983.452	3131.945	3287.828	3451.470	3623.257	3803.594	3992.907
55 - 59	1637.644	1719.153	1804.719	1894.544	1988.839	2087.828	2191.743
60 - 64	767.3834	805.5777	845.6730	887.7639	931.9498	978.3349	1027.029
65 - 69	456.6508	479.3793	503.2390	528.2863	554.5802	582.1828	611.1593
70 - 74	250.8955	263.3831	276.4922	290.2538	304.7004	319.8660	335.7864
75+	272.9407	286.5255	300.7865	315.7573	331.4732	347.9713	365.2906
AGE	1987	1988	1989	1990	1991	1992	1993
0 - 4	36870.82	38705.96	40632.44	42654.80	44777.82	47006.51	49346.12
5 - 9	28303.17	29711.88	31190.70	32743.13	34372.82	36083.63	37879.59
10 - 14	22697.11	23826.79	25012.70	26257.64	27564.54	28936.48	30376.71
15 - 19	26732.41	28062.93	29459.68	30925.96	32465.21	34081.07	35777.35
20 - 24	36322.16	38129.99	40027.80	42020.06	44111.49	46307.01	48611.81
25 - 29	28595.20	30018.45	31512.53	33080.97	34727.48	36455.94	38270.43
30 - 34	20155.87	21159.07	22212.20	23317.75	24478.32	25696.66	26975.63
35 - 39	12222.43	12830.77	13469.38	14139.78	14843.55	15582.34	16357.91
40 - 44	9684.140	10166.14	10672.13	11203.30	11760.92	12346.28	12960.78
45 - 49	7027.860	7377.652	7744.853	8130.331	8534.995	8959.799	9405.747
50 - 54	4191.643	4400.270	4619.280	4849.192	5090.546	5343.913	5609.891
55 - 59	2300.831	2415.348	2535.565	2661.765	2794.247	2933.323	3079.320
60 - 64	1078.146	1131.808	1188.140	1247.276	1309.356	1374.525	1442.938
65 - 69	641.5779	673.5106	707.0327	742.2232	779.1652	817.9459	858.6568
70 - 74	352.4992	370.0438	388.4616	407.7962	428.0931	449.4002	471.7678
75+	383.4719	402.5581	422.5942	443.6276	465.7079	488.8872	513.2201
AGE	1994	1995	1996	1997	1998	1999	2000
0 - 4	51802.18	54380.48	57087.11	59928.46	62911.23	66042.45	69329.52
5 - 9	39764.93	41744.12	43821.81	46002.92	48292.58	50696.20	53219.46
10 - 14	31888.62	33475.79	35141.95	36891.04	38727.18	40654.71	42679.18
15 - 19	37558.07	39427.41	41389.80	43449.85	45612.45	47882.67	50265.89
20 - 24	51031.32	53571.26	56237.61	59036.68	61975.06	65059.69	68297.84
25 - 29	40175.23	42174.84	44273.97	46477.58	48790.87	51219.29	53768.58
30 - 34	28318.27	29727.73	31207.34	32760.59	34391.16	36102.88	37899.80
35 - 39	17172.07	18026.76	18923.99	19865.88	20854.65	21892.63	22982.27
40 - 44	13605.87	14283.06	14993.96	15740.24	16523.67	17346.08	18209.43
45 - 49	9873.891	10365.34	10881.24	11422.82	11991.36	12588.20	13214.74
50 - 54	5889.107	6182.221	6489.923	6812.940	7152.034	7508.006	7881.695
55 - 59	3232.585	3393.477	3562.378	3739.685	3925.817	4121.213	4326.334
60 - 64	1514.756	1590.149	1669.294	1752.378	1839.598	1931.159	2027.277
65 - 69	901.3939	946.2582	993.3555	1042.797	1094.699	1149.185	1206.382
70 - 74	495.2486	519.8982	545.7746	572.9390	601.4554	631.3911	662.8167
75+	538.7642	565.5796	593.7297	623.2809	654.3029	686.5689	721.0558

TABLE 5; PUMWANI PROJECTION

AGE	1980	1981	1982	1983	1984	1985	1986
0 - 4	20460.05	21478.39	22547.41	23669.65	24847.74	26084.46	27382.74
5 - 9	16272.51	17082.43	17932.66	18825.20	19762.17	20745.78	21778.34
10 - 14	13764.61	14449.70	15168.90	15923.88	16716.45	17548.46	18421.89
15 - 19	17973.14	18867.70	19806.79	20792.61	21827.50	22913.90	24054.38
20 - 24	26404.91	27719.14	29098.78	30547.09	32067.48	33663.54	35339.05
25 - 29	3732.547	3918.323	4113.347	4318.076	4532.996	4758.613	4995.459
30 - 34	3881.319	4074.501	4277.297	4490.187	4713.673	4948.283	5194.569
35 - 39	3311.574	3476.398	3649.426	3831.066	4021.746	4221.917	4432.050
40 - 44	3120.924	3276.259	3439.325	3610.508	3790.211	3978.857	4176.893
45 - 49	3508.836	3683.478	3866.813	4059.272	4261.311	4473.405	4696.056
50 - 54	2774.890	2913.002	3057.988	3210.191	3369.969	3537.699	3713.778
55 - 59	2665.789	2798.471	2937.757	3083.975	3237.471	3398.607	3567.763
60 - 64	2877.377	3020.590	3170.931	3328.755	3494.434	3668.360	3850.942
65 - 69	1269.174	1332.343	1398.657	1468.271	1541.350	1618.066	1698.601
70 - 74	650.8587	683.2533	717.2603	752.9598	790.4362	829.7779	871.0777
75+	761.0847	798.9655	838.7317	880.4771	924.3003	970.3047	1018.599
AGE	1987	1988	1989	1990	1991	1992	1993
0 - 4	28745.63	30176.37	31678.31	33255.00	34910.17	36647.73	38471.76
5 - 9	22862.29	24000.20	25194.74	26448.73	27765.14	29147.07	30597.78
10 - 14	19338.78	20301.31	21311.75	22372.48	23486.01	24654.96	25882.09
15 - 19	25251.62	26508.44	27827.82	29212.87	30666.86	32193.21	33795.54
20 - 24	37097.95	38944.39	40882.74	42917.56	45053.65	47296.07	49650.09
25 - 29	5244.094	5505.103	5779.104	6066.742	6368.697	6685.680	7018.440
30 - 34	5453.114	5724.527	6009.449	6308.552	6622.542	6952.159	7298.133
35 - 39	4652.643	4884.215	5127.312	5382.509	5650.408	5931.641	6226.871
40 - 44	4384.786	4603.026	4832.129	5072.634	5325.109	5590.151	5868.385
45 - 49	4929.788	5175.154	5432.733	5703.131	5986.988	6284.973	6597.789
50 - 54	3898.621	4092.663	4296.364	4510.203	4734.685	4970.340	5217.724
55 - 59	3745.338	3931.751	4127.443	4332.874	4548.531	4774.921	5012.578
60 - 64	4042.611	4243.821	4455.044	4676.781	4909.555	5153.914	5410.435
65 - 69	1783.144	1871.895	1965.063	2062.868	2165.541	2273.325	2386.473
70 - 74	914.4331	959.9463	1007.725	1057.881	1110.534	1165.808	1223.833
75+	1069.297	1122.518	1178.388	1237.039	1298.609	1363.243	1431.095
AGE	1994	1995	1996	1997	1998	1999	2000
0 - 4	40386.58	42396.71	44506.88	46722.08	49047.54	51488.74	54051.44
5 - 9	32120.70	33719.41	35397.70	37159.52	39009.02	40950.58	42988.78
10 - 14	27170.29	28522.62	29942.25	31432.54	32997.00	34639.33	36363.40
15 - 19	35477.61	37243.41	39097.09	41043.03	43085.83	45230.30	47481.51
20 - 24	52121.28	54715.47	57438.77	60297.62	63298.76	66449.28	69756.60
25 - 29	7367.763	7734.472	8119.433	8523.554	8947.790	9393.140	9860.656
30 - 34	7661.429	8042.754	8443.059	8863.288	9304.433	9767.534	10253.68
35 - 39	6536.796	6862.146	7203.689	7562.232	7938.620	8333.742	8748.530
40 - 44	6160.467	6467.086	6788.967	7126.868	7481.587	7853.962	8244.870
45 - 49	6926.175	7270.906	7632.794	8012.694	8411.503	8830.161	9269.657
50 - 54	5477.422	5750.044	6036.236	6336.672	6652.062	6983.149	7330.715
55 - 59	5262.065	5523.969	5798.909	6087.533	6390.522	6708.592	7042.492
60 - 64	5679.723	5962.415	6259.177	6570.710	6897.748	7241.063	7601.466
65 - 69	2505.253	2629.945	2760.843	2898.255	3042.508	3193.940	3352.909
70 - 74	1284.746	1348.690	1415.817	1486.285	1560.261	1637.918	1719.441
75+	1502.323	1577.097	1655.593	1737.995	1824.499	1915.308	2010.637

TABLE 6; KASARANI PROJECTI

AGE	1980	1981	1982	1983	1984	1985	1986
0 - 4	38430.05	40342.79	42350.74	44458.63	46671.43	48994.36	51432.91
5 - 9	25252.26	26509.12	27828.53	29213.62	30667.64	32194.03	33796.40
10 - 14	17287.64	18148.08	19051.35	19999.58	20995.00	22039.96	23136.94
15 - 19	24124.81	25325.55	26586.06	27909.30	29298.41	30756.65	32287.47
20 - 24	42683.73	44808.19	47038.39	49379.59	51837.31	54417.37	57125.83
25 - 29	34232.01	35935.81	37724.41	39602.03	41573.11	43642.29	45814.46
30 - 34	21309.32	22369.93	23483.33	24652.14	25879.13	27167.19	28519.36
35 - 39	11671.36	12252.27	12862.09	13502.26	14174.30	14879.78	15620.38
40 - 44	8090.593	8493.279	8916.007	9359.776	9825.631	10314.67	10828.06
45 - 49	5466.163	5738.225	6023.829	6323.648	6638.389	6968.796	7315.647
50 - 54	3548.229	3724.832	3910.225	4104.845	4309.151	4523.627	4748.777
55 - 59	1972.529	2070.706	2173.769	2281.962	2395.540	2514.772	2639.937
60 - 64	1091.762	1146.101	1203.145	1263.028	1325.892	1391.884	1461.161
65 - 69	835.6185	877.2090	920.8695	966.7032	1014.818	1065.328	1118.351
70 - 74	451.402	473.8692	497.4547	522.2141	548.2058	575.4911	604.1345
75+ AGE	593.1212	622.6421	653.6323	686.1650	720.3168	756.1685	793.8046
	1987	1988	1989	1990	1991	1992	1993
0 - 4	53992.84	56680.18	59501.27	62462.77	65571.67	68835.31	72261.39
5 - 9	35478.52	37244.36	39098.09	41044.08	43086.93	45231.46	47482.72
10 - 14	24288.51	25497.40	26766.46	28098.69	29497.22	30965.35	32506.57
15 - 19	33894.49	35581.49	37352.46	39211.57	41163.21	43211.99	45362.74
20 - 24	59969.11	62953.89	66087.24	69376.54	72829.56	76454.44	80259.74
25 - 29	48094.74	50488.52	53001.44	55639.43	58408.72	61315.85	64367.67
30 - 34	29938.83	31428.95	32993.23	34635.37	36359.25	38168.93	40068.67
35 - 39	16397.84	17214.00	18070.77	18970.19	19914.38	20905.56	21946.07
40 - 44	11366.99	11932.75	12526.67	13150.15	13804.66	14491.75	15213.03
45 - 49	7679.762	8062.000	8463.263	8884.498	9326.698	9790.907	10278.22
50 - 54	4985.134	5233.255	5493.725	5767.159	6054.203	6355.533	6671.861
55 - 59	2771.332	2909.267	3054.068	3206.075	3365.648	3533.164	3709.017
60 - 64	1533.886	1610.231	1690.376	1774.509	1862.830	1955.547	2052.879
65 - 69	1174.014	1232.447	1293.789	1358.183	1425.783	1496.747	1571.243
70 - 74	634.2036	665.7692	698.9060	733.6920	770.2094	808.5443	848.7873
70+ AGE	833.3140	874.7897	918.3299	964.0371	1012.019	1062.390	1115.267
	1994	1995	1996	1997	1998	1999	2000
0 - 4	75857.99	79633.61	83597.14	87757.95	92125.84	96711.14	101524.7
5 - 9	49846.04	52326.98	54931.41	57665.46	60535.59	63548.57	66711.52
10 - 14	34124.49	35822.93	37605.92	39477.64	41442.53	43505.21	45670.56
15 - 19	47620.54	49990.71	52478.86	55090.84	57832.83	60711.29	63733.02
20 - 24	84254.44	88447.96	92850.20	97471.55	102322.9	107415.7	112762.0
25 - 29	67571.38	70934.55	74465.12	78171.40	82062.16	86146.56	90434.26
30 - 34	42062.98	44156.54	46354.30	48661.45	51083.44	53625.97	56295.05
35 - 39	23038.38	24185.05	25388.79	26652.44	27978.99	29371.56	30833.45
40 - 44	15970.22	16765.09	17599.52	18475.49	19395.05	20360.38	21373.76
45 - 49	10789.79	11326.82	11890.58	12482.40	13103.67	13755.87	14440.53
50 - 54	7003.934	7352.535	7718.486	8102.651	8505.937	8929.296	9373.725
55 - 59	3893.622	4087.416	4290.855	4504.420	4728.615	4963.968	5211.035
60 - 64	2155.055	2262.317	2374.917	2493.122	2617.210	2747.474	2884.221
65 - 69	1649.447	1731.544	1817.726	1908.198	2003.174	2102.876	2207.540
70 - 74	891.0332	935.3818	981.9377	1030.811	1082.116	1135.976	1192.516
70+ AGE	1170.776	1229.048	1290.220	1354.437	1421.851	1492.619	1566.910

APPENDIX C

PROJECTED PRIMARY -4-

TABLE 7; DAGORETTI PROJECTION SINGLE YEARS 6 - 13

AGE	1980	1981	1982	1983	1984	1985	1986
6	3555.578	3732.547	3918.323	4113.347	4318.076	4532.996	4758.613
7	3697.297	3881.319	4074.501	4277.297	4490.187	4713.673	4948.283
8	3154.565	3311.574	3476.398	3649.426	3831.066	4021.746	4221.917
9	2972.954	3120.924	3276.259	3439.325	3610.508	3790.211	3978.857
10	3342.474	3508.836	3683.478	3866.813	4059.272	4261.311	4473.405
11	2643.326	2774.890	2913.002	3057.988	3210.191	3369.969	3537.699
12	2539.398	2665.789	2798.471	2937.757	3083.975	3237.471	3398.607
13	2740.954	2877.377	3020.590	3170.931	3328.755	3494.434	3668.360

AGE	1987	1988	1989	1990	1991	1992	1993
6	4995.459	5244.094	5505.103	5779.104	6066.742	6368.697	6685.680
7	5194.569	5453.114	5724.527	6009.449	6308.552	6622.542	6952.159
8	4432.050	4652.643	4884.215	5127.312	5382.509	5650.408	5931.641
9	4176.893	4384.786	4603.026	4832.129	5072.634	5325.109	5590.151
10	4696.056	4929.788	5175.154	5432.733	5703.131	5986.988	6284.973
11	3713.778	3898.621	4092.663	4296.364	4510.203	4734.685	4970.340
12	3567.763	3745.338	3931.751	4127.443	4332.874	4548.531	4774.921
13	3850.942	4042.611	4243.821	4455.044	4676.781	4909.555	5153.914

AGE	1994	1995	1996	1997	1998	1999	2000
6	7018.440	7367.763	7734.472	8119.433	8523.554	8947.790	9393.140
7	7298.183	7661.429	8042.754	8443.059	8863.288	9304.433	9767.534
8	6226.871	6536.796	6862.146	7203.689	7562.232	7938.620	8333.742
9	5868.385	6160.467	6467.086	6788.967	7126.868	7481.587	7853.962
10	6597.789	6926.175	7270.906	7632.794	8012.694	8411.503	8830.161
11	5217.724	5477.422	5750.044	6036.236	6336.672	6652.062	6983.149
12	5012.578	5262.065	5523.969	5798.909	6087.533	6390.522	6708.592
13	5410.435	5679.723	5962.415	6259.177	6570.710	6897.748	7241.063

TABLE 8 ; KIBERA PROJECTION SINGLE YEARS 6 - 13

AGE	1980	1981	1982	1983	1984	1985	1986
6	3370.818	3538.591	3714.714	3899.603	4093.694	4297.446	4511.339
7	3454.8	3626.753	3807.264	3996.759	4195.686	4404.515	4623.737
8	2845.93	2987.578	3136.276	3292.375	3456.243	3628.268	3808.855
9	2626.529	2757.257	2894.491	3038.556	3189.792	3348.554	3515.219
10	2433.371	2554.485	2681.627	2815.097	2955.211	3102.298	3256.706
11	2259.109	2371.550	2489.587	2613.499	2743.578	2880.132	3023.482
12	2197.173	2306.531	2421.332	2541.847	2668.360	2801.170	2940.590
13	2288.503	2402.407	2521.979	2647.504	2779.276	2917.606	3062.821

AGE	1987	1988	1989	1990	1991	1992	1993
6	4735.878	4971.593	5219.039	5478.802	5751.493	6037.757	6338.269
7	4853.870	5095.457	5349.069	5615.303	5894.789	6188.185	6496.184
8	3998.429	4197.440	4406.355	4625.669	4855.898	5097.586	5351.304
9	3690.179	3873.847	4066.656	4269.062	4481.543	4704.598	4938.756
10	3418.799	3588.960	3767.590	3955.110	4151.965	4358.617	4575.554
11	3173.967	3331.942	3497.780	3671.872	3854.628	4046.481	4247.883
12	3086.949	3240.593	3401.884	3571.203	3748.949	3935.542	4131.423
13	3215.264	3375.295	3543.290	3719.647	3904.782	4099.131	4303.154

AGE	1994	1995	1996	1997	1998	1999	2000
6	6653.738	6984.909	7332.562	7697.520	8080.641	8482.832	8905.040
7	6819.512	7158.934	7515.249	7889.299	8281.966	8694.177	9126.904
8	5617.649	5897.252	6190.770	6498.898	6822.362	7161.925	7518.389
9	5184.568	5442.615	5713.506	5997.879	6296.406	6609.791	6938.775
10	4803.289	5042.359	5293.328	5556.788	5833.361	6123.700	6428.489
11	4459.309	4681.259	4914.255	5158.847	5415.614	5685.161	5968.123
12	4337.052	4552.917	4779.525	5017.412	5267.139	5529.296	5804.500
13	4517.331	4742.168	4978.196	5225.971	5486.078	5759.132	6045.776

TABLE 9 ; MAKADARA PROJECTION SINGLE YEARS 6 - 13

AGE	1980	1981	1982	1983	1984	1985	1986
6	4259.975	4472.003	4694.584	4928.244	5173.533	5431.030	5701.344
7	4012.229	4211.926	4421.563	4641.633	4872.657	5115.179	5369.773
8	3804.374	3993.726	4192.502	4401.172	4620.227	4850.186	5091.590
9	3574.474	3752.383	3939.147	4135.207	4341.025	4557.087	4783.903
10	3386.565	3555.121	3732.067	3917.820	4112.818	4317.522	4532.414
11	3214.402	3374.390	3542.340	3718.650	3903.735	4098.032	4302.000
12	3127.271	3282.922	3446.320	3617.851	3797.919	3986.949	4185.388
13	3155.615	3312.677	3477.555	3650.641	3832.341	4023.084	4223.322

AGE	1987	1988	1989	1990	1991	1992	1993
6	5985.112	6283.004	6595.722	6924.005	7268.627	7630.402	8010.183
7	5637.037	5917.605	6212.136	6521.327	6845.908	7186.643	7544.337
8	5345.009	5611.041	5890.314	6183.488	6491.253	6814.336	7153.500
9	5022.007	5271.963	5534.360	5809.817	6098.984	6402.543	6721.211
10	4758.002	4994.818	5243.420	5504.396	5778.362	6065.963	6367.879
11	4516.119	4740.896	4976.861	5224.569	5484.607	5757.588	6044.155
12	4393.703	4612.387	4841.956	5082.950	5335.939	5601.520	5880.319
13	4433.525	4654.191	4885.840	5129.019	5384.301	5652.239	5933.615

AGE	1994	1995	1996	1997	1998	1999	2000
6	8408.867	8827.394	9266.752	9727.978	10212.16	10720.44	11254.02
7	7919.835	8314.022	8727.828	9162.230	9618.254	10096.97	10599.52
8	7509.545	7883.311	8275.680	8687.578	9119.977	9573.898	10050.41
9	7055.740	7406.919	7775.577	8162.584	8568.853	8995.342	9443.060
10	6684.821	7017.539	7366.817	7733.479	8118.390	8522.460	8946.640
11	6344.985	6660.789	6992.310	7340.332	7705.676	8089.204	8491.820
12	6172.995	6480.238	6802.773	7141.362	7496.802	7869.934	8261.637
13	6228.944	6538.072	6864.430	7206.087	7564.749	7941.263	8336.516

TABLE 10 ;PUMWANI PROJECTION SINGLE YEARS 6 - 13

AGE	1980	1981	1982	1983	1984	1985	1986
6	3422.257	3592.590	3771.401	3959.111	4156.165	4363.026	4580.183
7	3568.175	3745.771	3932.206	4127.920	4333.375	4549.057	4775.473
8	4123.505	4328.740	4544.191	4770.365	5007.796	5257.045	5518.699
9	2927.814	3073.538	3226.514	3387.105	3555.688	3732.662	3918.445
10	2798.692	2937.989	3084.219	3237.727	3398.876	3568.045	3745.634
11	2684.267	2817.869	2958.120	3105.352	3259.912	3422.165	3592.493
12	2651.724	2783.706	2922.257	3067.704	3220.390	3380.676	3548.939
13	2732.557	2868.562	3011.336	3161.217	3318.557	3483.729	3657.121

AGE	1987	1988	1989	1990	1991	1992	1993
6	4808.148	5047.460	5298.682	5562.409	5839.262	6129.894	6434.992
7	5013.158	5262.674	5524.608	5799.579	6088.237	6391.261	6709.367
8	5793.376	6081.724	6384.425	6702.191	7035.773	7385.958	7753.573
9	4113.474	4318.210	4533.137	4758.760	4995.614	5244.256	5505.274
10	3932.062	4127.769	4333.217	4548.890	4775.298	5012.975	5262.481
11	3771.299	3959.004	4156.052	4362.908	4580.059	4808.019	5047.323
12	3725.577	3911.007	4105.666	4310.014	4524.532	4749.728	4986.132
13	3839.144	4030.226	4230.819	4441.396	4662.454	4894.514	5138.124

AGE	1994	1995	1996	1997	1998	1999	2000
6	6755.275	7091.499	7444.458	7814.985	8203.953	8612.281	9040.932
7	7043.307	7393.867	7761.875	8148.200	8553.753	8979.492	9426.419
8	8139.485	8544.604	8969.887	9416.337	9885.008	10377.01	10893.49
9	5779.283	6066.930	6368.894	6685.887	7018.658	7367.991	7734.711
10	5524.406	5799.367	6088.014	6391.027	6709.122	7043.049	7393.596
11	5298.539	5562.259	5839.104	6129.729	6434.818	6755.093	7091.307
12	5234.302	5494.824	5768.313	6055.414	6356.805	6673.197	7005.335
13	5393.859	5662.323	5944.149	6240.002	6550.580	6876.616	7218.879

TABLE 11 ; KASARANI PROJECTION SINGLE YEARS 6 - 13

AGE	1980	1981	1982	1983	1984	1985	1986
6	5804.190	6093.077	6396.342	6714.701	7048.906	7399.745	7768.046
7	5008.463	5257.744	5519.433	5794.147	6082.534	6385.275	6703.083
8	4529.767	4755.223	4991.900	5240.358	5501.181	5774.987	6062.420
9	4108.808	4313.312	4527.995	4753.363	4989.947	5238.308	5499.029
10	3739.288	3925.401	4120.776	4325.876	4541.184	4767.208	5004.482
11	3415.958	3585.978	3764.460	3951.825	4148.515	4354.996	4571.753
12	3258.493	3420.675	3590.929	3769.657	3957.281	4154.243	4361.008
13	3319.379	3484.592	3658.027	3840.095	4031.225	4231.867	4442.496

AGE	1987	1988	1989	1990	1991	1992	1993
6	8154.678	8560.554	8986.630	9433.914	9903.460	10396.38	10913.83
7	7036.710	7386.942	7754.606	8140.569	8545.742	8971.081	9417.591
8	6364.159	6680.917	7013.440	7362.514	7728.962	8113.648	8517.482
9	5772.727	3422.257	3592.590	3771.401	3959.111	4156.165	4363.026
10	5253.565	3568.175	3745.771	3932.206	4127.920	4333.375	4549.057
11	4799.298	4123.505	4328.740	4544.191	4770.365	5007.796	5257.045
12	4578.064	2927.814	3073.538	3226.514	3387.105	3555.688	3732.662
13	4663.608	2798.692	2937.989	3084.219	3237.727	3398.876	3568.045

AGE	1994	1995	1996	1997	1998	1999	2000
6	11457.03	12027.27	12625.89	13254.31	13914.00	14606.53	15333.53
7	9886.324	10378.39	10894.94	11437.21	12006.46	12604.05	13231.39
8	8941.415	9386.448	9853.631	10344.07	10858.91	11399.38	11966.76
9	4580.183	4808.148	5047.460	5298.682	5562.409	5839.262	6129.894
10	4775.473	5013.158	5262.674	5524.608	5799.579	6088.237	6391.261
11	5518.699	5793.376	6081.724	6384.425	6702.191	7035.773	7385.958
12	3918.445	4113.474	4318.210	4533.137	4758.760	4995.614	5244.256
13	3745.634	3932.062	4127.769	4333.217	4548.890	4775.298	5012.975

Appendix D

Total Land Area Committed to selected City Council Schools and Estimated number of Pupils.

Number of Division of School.	Number of Pupils	Lands Areas
NORTHERN	15,680	210
Ainsworth	840	504
Baba Dogo	1,240	13.1
Chelata	560	8.1
Ruai (Old Dandora)	280	6
Pangani (Eastleigh)	840	8.6
Eastleigh Airport	1080	12
Garden Estate	720	6.2
Juja Road	840	27.5
Kamiti	560	10
Kariobangi	960	5.5
Karura Forest	560	5.9
Kasarani	760	2.5
Mahiga	600	9.2
Mathari Old	560	8.9
Mathare Valley	1080	4.5
Muthaiga	640	6.9
Racecourse	800	8.6
SOUTHERN	12,680	177
Dagoretti Muslim	760	9.3
Gitiba	560	5.1
Kagira	560	7.1
Kareu 'C'	480	10.1
Jamhuri	880	6
Kawangware	1,120	5.8
Kilimani	840	10.7
Kirigu	680	4.1
Mukasara	560	10.1
Mutuini	720	10.5
Ndwarua	560	11
Nembu	560	11.3
Ngong Forest	560	11
EASTERN	23,440	155
Bahati Uhuru	600	8
Buru Buru	720	7.2
Canon Apolo	560	1.8
Dr. Krapf	1,000	4.8
Dr. Livingston	1,120	5.1
Edelrale	560	8.9
Embakasi	840	5
Hashina Road	1,160	3.5
Jagoo Road	840	8.1
Makongeni	1,120	5.2
Martin Luther	1,040	11.2
Mani	800	1.3
Morrison	640	2.7
Ofafa Jericho	840	5.7
O.L.M (Shauri Moyo)	840	6.1
St Ann's	1,120	1.9
St. John's	1,120	2.1

WESTERN	16,000	125
Aga Khan	1120	3
Arya Girls	720	2.8
Bernd Esatate	560	4.8
City Primary	1120	8.6
Farasi Lane	480	9
High Ridge	840	10.1
Hospital Hill	880	9.7
Kabete Vet. Lab	1080	7.2
Kangeni	1080	11.4
Kilimbiini	800	9.6
Kileleshwa	560	4.9
Lower Kabete	640	5.7
Muguga Goesr	680	4.4
Muslim Girls	640	4.8
CENTRAL	19,240	145
Bohra	280	.4
Catholic Parochial	440	3.8
C.G.H.U Cutchi	560	.1
Gujarati Hindu		
Dr Aggrey	840	5
Muranga Road	840	2.8
Moi Avenue	560	1.3
Islamia	280	1.3
Khalsa Racecourse	560	1.2
Kongoni	800	8
Langata Road	560	7.8
Langala West	600	5.8
Madaraka	720	2.5
Mariakani	560	6.7
Mbagathi Road	1120	5.4
Muslim	840	4.5
Muthurwa	920	9.3
Nairobi Primary	840	13.8
New Puriwani	840	5

Source: Karamo, R.N, "Education Facilities in Nairobi" Town Planning

Section, City Engineer's Dept, City Council of Nairobi 1978.