PROJECT ION OF STAFFING DEMAND IF PUBLIC PRIMARY SCHOOLS BASED ON PUPIL'S ENVIRONMENT TRENDS IN KENYA. A CASE OF KONOIN DISTRICT

BY

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DECLARATION

Declaration by Candidate

This Thesis is my original work and has not been presented for the award of a degree in any University. No part of this proposal may be reproduced without prior permission of the author and /or the University.

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DEDICATION

This thesis is dedicated to my Daughter Yvonne and sons Ian, Ivan, Idi and Idriss, my parent Mrs. Esther Rop and our house help Ms Caroline. They tirelessly encouraged me throughout my research. Thanks and may God bless you.

ABSRACT

The purpose of this study was to project primary school enrolment in the year 2015 and the number of teachers who would be required to teach the forecasted pupils base year being 2010. The study was based in Konoin district, Bomet County.

The study was based on the manpower requirement approach by Thompson [1981] which is an attempt by policy makers and economists to ensure that labour of right volume, quality and type meets social and economic objectives of education. The study utilized descriptive case study design and the advantages was that data collected showed the then the status of population with respect to one or more variables at a given time and sought information that is quantifiable and report the way things are. Purposive sampling techniques was employed in choosing the sample size for the study. The sample for the study was the education officers in charge of statistics and the Teachers Service Commission unit representatives at the District Educational Offices. Staff in the record section at the Central Bureau of statistics also participate in the study as they maintained relevant data. Data for the study was collected by use of questionnaires, interviews scheduled and document analysis. Questionnaires were designed to address specific objectives, uphold confidentiality and was easy to analyse. Each was given to officer in charge of statistics and the Teachers Services Commission unit in the Districts. Document analysis guide was given to officers in charge of population statistics in District Central Bureau of statistics so as to obtain data on children population born in the year 2002-2009. Interview was used to obtain information on teacher and pupils from District Educational Offices. The study analyzed collected data both qualitatively and quantitatively. The descriptive statistics used were frequency distribution table and percentage where as inferential statistics used simple regression technique in which only two variable i.e independent variable [enrolment] and one dependent variable [staffing].

The finding indicated that the projected number of pupils in primary schools in the year 2015 in Konoin District would 35,585 and required staff would be 1424.This was calculated using international pupil-teacher ratio of 25:1.

The District would run short of 517 teaching staff and it was recommended that Teachers Service Commission should provide a solution to meet teachers demand in the District to anticipate the high enrolment of pupils as results of Free Primary Education to all school aged children and should enact laws that guarantee all citizen right to quality education so as to meet EFA, UPE, MDG goals and Kenya Vision 2030 as FPE programmes is greatly dependent on effective teachers management.

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I appreciate the efforts and contributions made by education personnel in charge of statistics and TSC personnel at DEO's office in Konoin and Bureti Districts. My appreciations also go to the officers at the record department of Central Bureau of Statistics in Konoin and Bureti Districts. I also give special thanks to my colleagues Johannes Koech, Mr. John Korir of Complex Computers-Mogogosiek for their moral, spiritual and financial support that gave me determination to complete my thesis.

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LIST OF TABLES

ABBREVIATIONS

AIDS	– Acquired Immune Deficiency Syndrome
CBS	– Central Bureau of Statistics
DEO	– District Education Officer
ECDE	– Early Childhood Development Education
EFA	– Education For All
FPE	– Free Primary Education
GDP	– Gross Domestic Product
GER	– Gross Enrolment Ratio
HIV	– Human Immuno Deficiency Virus
KESSP	– Kenya Education Sector Support Programme
KICC	– Kenyatta International Conference Centre
KNEC	– Kenya National Examination Council
MDG's	– Millennium Development Goals
MOE	– Ministry of Education
NARC	– National Rainbow Coalition
PTA	– Parents Teachers Association
PTR	– Pupils Teacher Ratio
SPSS	– Statistical Package for Social Science
TSC	– Teachers Service Commission
TTC	– Teachers' Training Centre
UNICEF	– United Nations International Children's Education Fund
UNIESCO	– United Nations Education, Scientific Organization
UPE	– Universal Primary Education

CHAPTER ONE

1.0 Introduction to the study

This chapter deals with the background of the study, statement of the problem, purpose of the study, objective, research questions, significances and justification, scope and limitation, Assumptions, theoretical frame work and operational definition of key terms.

1.1 Background of the study

World Bank, (1980) linked Education and Development. Education is seen as the principle agent for developing human resource and profitable investment in the world. It means that economic development of societies depend on human resource which in turn depend on both quantity and quality of education given to the nations.

On attainment of political independence, most developing countries began their drives for Social, Political and Economic Development and Education was perceived as means of not only raising Political and Social consciousness, but to also increase number of skilled workers and raising the level of trained manpower [Court and Ghai, 1974].

When Kenya attained independence in 1963, many colonialists vacated jobs and went back to their motherland .most jobs that had been left required people with at least a Primary Education. When Free Primary Education was declared in Kenya in 1974, total enrolment that stood 2.1 million rose steadily to 3.2 million in 1978 [Mutua and Namaswa, 1992]. Again Republic of Kenya [2005] indicates that there has been upsurge in enrolment in public primary schools in Kenya following the implementation of Free Primary Education in January 2003 that saw enrolment increased from 5.9 million children in 2002 to 7.2 million in 2003.

The freezing of teachers' employment by the Kenyan government since 1997 has had adverse effect on deployment of teachers in Kenyans schools thus raising pupil-teacher ratio contrary to the recommended ratio of 40:1 as per the Ministry of Education. Republic of Kenya,(2005). The pupil- teacher ratio measures the number of pupils per teacher .It reflect workload equitability of teachers service to their pupils. The lower the pupil-teacher ratio, the higher the availability of teachers service to the pupils. Pupil –Teacher's ratio has implication not only for the cost of education but also for the quality .The policy is to have a maximum of 25 pupils per teacher with a class size of 30.36 pupils.

The pupils demand for primary education is growing annually and dictates manpower requirement and place to satisfy demand. Mutua and Namaswa, (1992) pointed out the following considerations and must be put in place: number of children of school going age, number of children born annually and the number of children of age-group who need education but out of school. It therefore examines demographic trends through time in order to estimate the school age population. Projection on school's enrolment therefore helps educational planners and policy makers to forecast human resources needed in future time and to focus the number of teachers. .Here pupil's number needs to be known. The pupils demand for primary education is growing annually and dictates manpower requirement and places to satisfy demand. Mutua and Namaswa, (1992) pointed out the following considerations that must be put in place: number of children of school going age and the number of children born annually, number of children of age group who need education but out of school. It therefore examines demographic trends through time in order to estimate the school age population. Projection on school enrolment therefore helps education planners and policy makers to forecast human resource needed in future time and to focus the number of teachers.

Here, pupils' numbers need to be known while Sheehan (1993) pointed out that in order to determine the demand for teachers at any time, the number of pupils attending school must be focused on pupils' enrolment. He noted other factors like class size, number of subjects taught and teaching load has equal important requirement for focusing the demand of teachers.

In Kenya the T.S.C is only allowed to recruit teachers to replace those existing through natural attrition, but introduction of Free Primary Education programme in the year 2003 (NARC manifesto),saw an estimated 1.5 million children who were previously out of school have attended classes. The then Minister of Education Prof. George Saitoti emphasized this achievement and noted "We will not be content until every child of primary school age is enrolled". By educating children we are investing in future of this country. In the long term educating children is one way to eradicate poverty. Ministry Of Education,(2003).

Following these, the government carried out comprehensive review on the current education, provide free and compulsory primary education to all school age children and designed a system that guaranteed all citizens a right to quality education. To meet the above obligations the Ministry Of Education embarked on setting the stage for secretary by undertaking the following. Ministry Of Education, (2003) Developed Sector Review focusing on analyzing the sector performance based on agreed key-indicators, held a National Conference on Education in 2003 with objectives to build a National course on the kind of education Kenya need in 21st Century, develop Session Paper No.1 of 2005 entitled a Policy Framework on Education Training and Research for 21st Century and developed the Kenya Education Sector Support Program (KESSP). (2005-2010) to operationalize the session paper within a sector wide

approach to planning. All these has resulted in upsurge in enrolment in primary school exerting pressure on the teachers resources resulting in high pupil-teacher ratio (PTR). Gross Enrolment Ratio (GER) rose from 6,314,726 to 7,614326 in 2005. This represents 22.3% increase nationally. The number of teacher remained unchanged at about 180,000 and could be less because of natural attrition and other who have left service. Ramani, (2006). The effort by the T.S.C to decentralized teachers recruitment to the District level based on demand driven is a key to addressing current problem of understaffing. There is need for additional teachers to reduce PTR currently experienced in schools so as to provide quality education. Through T.S.C survey it has been established that there is still a staffing gap that are difficult to address even with staff balancing. The increased Pupils teacher ration in most primary schools according to T.S.C secretary is due to: High population enrollment, numbers of teachers leave, teacher shortage or surplus and the rate of HIV/AIDS infection among teachers threatened supply of teachers in schools.

To determine staffing gap and demand on teachers based on pupil enrollment man power requirement approach to planning is used so as to: Project the level of output for target years to avail adequate demand of teachers, projection on total number of pupils enrolment in five years time and projection on educational level and training appropriate for each personnel identified.

This calls for a survey approach for collection of data from various relevant sources over a fore cast period of expected output and information obtained would then be aggregated for internal consistence prior to being used.

In practice the existing parameter is one teacher per class plus 2.5% for determination of District requirement. This calls for continues update and projection on staffing in

all schools and additional new teachers to be deployed so as they can be fully engaged to meet the number of pupils enrolled in primary schools and forecast of manpower requirement would provide linkage for educational expansion to manpower requirement of economic in Kenya.

1.2 Statement of the problem

Projecting teachers demand is vital in provision quality education if Kenya is to obtain Millennium Development Goals (MDG) This was shared by world leaders Kenya including where series of quantifiable and time –bound targets and a set of indicators for tracking progress was discussed on millennium declaration on September 2000 at United Nations Summit (Collymore,2005). The government policy is to achieve UPE by the year 2015 .In order to achieve this, planning for adequate number of teachers should be given a priority. Koech, (1999).

Republic of Kenya, (1996) report on manpower revealed that there was inadequate data for manpower planning .It further noted that there was no comprehensive system for monitoring human resource development trends. This justified the fact that teachers shortage in Konoin District just like other in the whole country is occasioned by poor planning .The statistics collected from the DEO office in Konoin District revealed a persistent shortage of teachers as a result of high pupil teacher ratio and indicates a need to prepare adequately in future for such enrolment. The study investigation made a projection of staffing demands based on pupils enrolment trends in the 2015 in public primary schools in Konoin District The teacher demands was dictated by the number of pupils enrolled in schools in subsequent years till the target year. Data from past five years were used to established trends which were then used to make forecast in the next five years base year being 2010 .The five year projection

was appropriate because it is enough to allow planning for training and recruitment of teachers since it takes 2-4 years to train teachers .The study intended to fill gaps of teachers shortage by planning for manpower of teachers in primary schools in Konoin District in the target year 2015.

1.3 Purpose of the Study

The purpose of this research was to study a five year projection on achieving staffing demand based on enrolment by the year 2015 using Pupils-Teacher Ratio of 25:1. UNESCO, (2006).

1.4 Objective of the Study

The objectives of this study were guided by five specific objectives:-

1 To establish the staffing demand in primary schools in Konoin District in the last five years base year being 2010.

2 To investigate pupils enrolment trends in primary schools in Konoin District in the last five years base year being 2010 and prediction of the same in the next five years.

3 To establish the current pupil-teacher ratio in primary school in Konoin District in the year 2010 and prediction of the same in the year 2015.

4 To determine the school establishment trends in the last time year base being 2010 in Konoin District and prediction of the same in the next five years.

5 To establish the of teachers shortage in the last five years in Konoin District based year being 2010 and the prediction of the number of teachers to be employed in the next five years.

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1.5 Research Questions

Major research questions for the study were:-

1 What was the staffing demand in primary school in Konoin District in the last five years base year being 2010.

2 What was the pupil enrolment trends in primary school in Konoin District in the last five years base

3 Year being 2010 and prediction of the same in the next five years

4 What is the current pupil-teacher ratio in primary school in Konoin District in the year 2010 and prediction of the same in the year 2015

5 How was the primary school establishment trends in the last five years base year being 2010 in Konoin District and prediction of the same in the next five years.

6 What was the number of teachers shortage in the last five years in Konoin District base year being 2010 and prediction of the same number of teachers to be employed in the next five years.

1.6. Significance

The following were the significance of the study:-

The information from the study would be useful to Primary Teacher Training Colleges and related institution to plan for and train adequate number of teachers to handle the anticipated number of pupils at primary level in the projected year 2015.

The information from the study would help Educational planner to see whether and how Education system is meeting the needs of the estimated trained personnel required in target year.

1.7 Justification

a) It seems that there has been no study done in the area to forecast teacher demand in konoin district.
b) There is a high and persistent pupil-teacher ratio in primary schools in kenya.
c) The period required for training teachers in case of shortage is fairly long and the problem of time lag may not be severe.

1.8 Scope of the Study

The study was carried out in Konoin District in Bomet County with 91 public primary schools *(DEO's statistics 2010*) and National Population Census Statistics of 24/08/2009 was utilized to make projection on pupils enrolment in primary in schools in five years time and additional number of trained teachers to be supplied to primary schools in Konoin District was calculated.

1.9 Limitations of the Study

The following were the limitation of the study

a) Forecasting is a difficult exercise and is likely to end as a process relying on ability to educational planner to make intelligent future guess leading to inability to make accurate projection of the future.
b) There was limited literature on forecasting teacher demand which limit the review of the literature

1.10. Assumptions

a) The study had the following assumption:
b) Past enrolment trends will remain into the future of pupils and teachers.
c) Mortality rate is low and insignificant in the district among teachers and pupils.

d) Migration into and out of the district is limited and therefore negligible.
e) All children in the district are enrolled in the schools within the district and if they join schools outside the district, those from other district are equal to those living the district.
f) There will be no transfers of teachers out of the district but in case of a transfer there will be a replacement and the net effect will be zero.

1.11 Theoretical Framework

The study utilized Man Power Requirement Model by Thompson (1981) that involves analysis of skilled manpower demand of economy from which a calculation may be made of quantities, kinds and levels of education needed to meet these requirements. This approach attempts to provide the country with the correct number of suitably educated people to meet Social, Political and Economic needs at different manpower levels, of late countries have begun to rely on four other manpower projection techniques namely:

- Employers Estimate of Future Manpower Requirement, International Comparison, Extra-population of Fixes Input-Output Ratios and Manpower Population Ratios .

Steps involves in Manpower Requirement Approach according to Psacharopoulos and Wood hall (1995).

a) Establish current status of manpower (staffing) in the district base year being 2010.
b) Make estimate of total educational labor force (teacher demand) in the year 2015
c) Make total estimate of the supply of teachers with various educational qualification base on stock, retirement and death.

d) Calculate additional enrolment of pupils to meet the target number of teachers demanded in five years time 2015

Projection methods to be used

Enrolment ratio method:-Net enrolment ratio (NER) is employed because it takes into account specific ages of pupils enrolled in a particular level of education

$$NER = \frac{\text{number of pupils in primary (6-13) years}}{\text{Population of pupils age (6-13) years}}$$

NB:- The data was available and isolated those who en rolled in school 6-13 year divided by total age school population. This provided a true rate of those enrolled who are supposed to be in school.

Steps:-

i. Work out population projection of pupils if not readily available.
ii. Calculate enrolment ratio in five years time
iii. Project enrolment ratio based on enrolment ratio (NER)
iv. Project population by taking percentage of enrolment to arrive at projected population.

Staffing projection

Teachers projection follows pupils enrolment and is calculated using pupils-teacher ratio method

Formula

$$T_s^t = \frac{E_s^t}{R_s^t}$$

Where T_s^t = No of teacher at a particular time (t) for a given school (s)

E_s^t = enrolment at a given time (t) for a given school (s)

R_s^t = teacher pupil ratio at a given time (t) at a given school (s)

NB:- No meaningful planning is possible without references to the current and future demographic profile of the country. Thus using the formulae one will be able to:-

1. Calculate total number of present teachers
2. Calculate additional teachers required in future that is 2015.

1.12. Operational Definition of Key terms

Staffing – a process of acquiring, deploying and retaining a work force of sufficient quantity and quality to create positive impact in an organization

Demand – this is the amount of a particular good or service that consumers will want to consume

Manpower – supply of human labour ready to work

Forecast – To make prediction of an event with the help of past records.

Student Cohort – Is a group of students with similar identifiable characteristics.

Teacher wastage rate – This is the number of teachers who leaves profession as a result of either retirement, dismissal, changing of jobs /career, illness or death.

Pupils' wastage rate – This is the rate at which pupils who enroll in initial grades fail to reach final grade in the same Cohort.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction to the Study

This chapter highlights the related literature drawn from various sources. The related literature were discussed under Purpose of education, Rationale for planning, Global comparative of education systems, “the cost of Free Education”, Enrolment of pupils in Kenya Primary Schools, Staffing Demand and Teacher projection based on pupils teachers ratio.

2.1 Purpose of Education

According to Republic of Kenya, (2004) .A good education can contribute significantly to economic growth, improved employment prospect and income generating opportunities .The overall policy of Kenyan government is to achieve Education for All. The ultimate goal is to develop an all inclusive and quality education that is accessible and relevant to all Kenyans.

The Session Paper No. 10 of 1965 on African socialism and it’s application to planning in Kenya saw education as a means of producing manpower for economic growth and development. Development Plan specified the projected growth of economic and more specifically the investment programme of government in five years. Education was seen as an avenue for empowering individuals to combat poverty, diseases and ignorance that are major impediment to National Development. Education set values for both individual and the Nation. At the individual level, education arms one with literacy and numeracy skills which enhance their capacity to demand justice and rights, participate in National Development, manipulate their environment and attain self-fulfillment. At the National level, education is a catalyst

that facilitate the development of appropriate skills, knowledge, attitudes and impart values and ethics that enhance integrity and peace, impart skills for production and creating capacity for self-development. Education is fundamental to enhancing the quality of human life and ensuring social and economic progress *(UN report on the World Social Situation, 1999).* Education is therefore the key to creating, adapting and spreading knowledge…. But the gains in access to education have been unevenly distributed with the poor seldom getting their share, *(World Bank, World Development Report, 1998/1999).* Most economists argue that it is the human resource of the nation, not its physical capital or its natural resource that ultimately determines the character and pace of its economic and social development. Capital and natural resources are passive factors of production, human beings are active agents who accumulates capital, exploit natural resources, built social economies and political organization and carry forward national development (Prof. Fredrick Harbison of Princeton University). This calls for enough manpower to teach in various primary schools in the country.

2.2 Why plan

Who plans? There is a saying that if you do not plan, you plans to fail. Planning activity is carried out by all members of the society, however they are trained professionals who carried out these tasks on behalf of the larger society. According to Birgen, (2003) there is need for planning in education especially in developing countries because there is scarcity of resources .There are insufficient funds to carry out all the educational program me needed. Also there is insufficient qualified manpower to actualize development program me and there are other sectors besides education that compete for the resources for example agriculture and industries that

are equally important. Republic of Kenya, (2007) talked of needs to have adequate manpower in order to develop human capacity and access to opportunities in Social, Political and Economic arenas and therefore the overall improvement on quality of life. Education therefore plays a significant role in National Development since it is an investment in human capital and there are empirical evidence indicating that human capital is a key determinant of economic growth. We plan therefore because of the following reasons:-

We plan so as to utilize human and material resources that are scare., so as to resolve social problems in most effective ways, planning helps in facilitating re-distribution of resources in order to attain equitable and just order in the society, planning provide a guide to overall economic growth and stability in society and planning also helps policy makers to design effective and efficient ways of providing public service like education.

Cohn,(1975) talked of human resources growth and using this model education planner need to identify the category of human resource that will be in short supply and which thus helps in minimizing stock of human resource in primary schools. *(Namaswa, 1989).* At the same time, the expansion of education system has been accompanied by a rapid growth in the enrolment of pupils. The government is committed to provide Free Primary Education. Total enrolment has increased in all levels of education. Other factors are increased awareness about the value of education among parents and also the government policy to ensure that all children be able to complete primary education.

2.3 Comparative Analyzing of Education System Globally

Comparative analysis has been used in policy making to provide a menu from which policies could be borrowed.

2.3.1 Global population of primary school age 2000 - 2015

MDG is achievement of UPE and EFA by 2015 since the year 2000, many countries have come closer to this goal but at the current rate of progress, it is likely that the goal would be achieved when the year 2015 arrives. To ensure that all children attend and complete the primary school, countries have to provide enough schools, teachers and training materials. Future demographic trend are one factor that has to be taken into consideration to plan for education system.

2.3.2 UN- Population Division Projection

This helps to calculate a National and Regional trends in population of primary school age which is projected to increase from 655 million in 2000 to 688m in 2015. In some region the population of primary school age is expected to shrink, while others experience a population increase.

In sub-Sahara African the number of children school age is estimated to grow by 37% or 41 million children over the period 2000-2015. These countries have to increase capacity of education system to accommodate rapidly growing population a part from provision of teachers and schools.

2.3.3 Population of primary school age 2000- 2015

	REGION	PUPILS OF PRIMARY SCHOOL AGE *(MILLION)*	
		2000	**2015**
1.	Oceania	1.1	1.3
2.	Common wealth and independent states	15.1	12.3
3.	North Africa	19.7	20.0
4.	Western Asia	23.9	27.2
5.	Latin America and Caribbean	58.1	57.7
6.	Southern Eastern Asia	63.4	62.9
7.	Developed countries	67.8	65.0
8.	Sub-Sahara Africa	111.4	152.5
9.	Eastern	117.00	118.2
10.	Southern Asia	177.0	181.2
11.	World	65.4.9	668.3

Source population UN population division, World population)

2.3.4 Efficiency Indicators of Education System

The efficiency of education system can be monitored by indicators such as repetition rate, drop out rate, promotion rate and survival rate at various levels of education. The lower the repetition and drop out rate, the higher the number of promoters and survival rate and the better the system is said to be doing. The net and gross enrolment (NER and GER) and intake ration indicates access to education. This gives quantitative information on the quality of the system. If children come to school, remain in school and do not repeat too much, it gives an indication of a good

education system. As countries near UPE and EFA goals, it is important to devise innovation programmes and create facilities to enroll population groups that are not visible at present. The Ministry of Education in Kenya must devise new ways of reaching and fast tracking promotion of overage to reduce classroom congestion and discourage drop outs to some extent. The Ministry must also design their own strategies and programmes to track out of school children and enroll them in school to achieve 100% plus net enrolment by 2015. *(EFA Global monitoring report,2003 -2004 on Gender and Education for All, UNESCO).*

2.2 The Cost of 'Free' Education and its misconception

Kenya's progress in education has already come at a stiff price. In 2003, government spending on primary education jumped by over 360% and overall spending on education and training reached an estimate of US$420m.that is nearly 30% of all government outlay that year as the government struggled to keep pace with expanded demand for teachers, books and other materials *(UNICEF, 2004)*. It is further reported that Kenya needs 31,000 additional primary schools teachers. The agency further asserts that inefficient and antiquated work roles have left existing staff underutilized. In some schools, head teachers are diverting FPE funds for supplies and construction to hire more teachers or solicit fees from parents for the same purpose. Teachers' shortage is worsened by HIV/AIDS pandemic which has hit Kenya teachers and other professional staff. Education in Kenya is expensive. Some facts on financing Education indicate that:- Excluding share by households, the average government spending on education is between 5.7% of GDP and 35% of public sector recurrent budget, 50% of resources go to Primary Education of which 96% of the fiscal resources go to primary schools to meet the teacher salaries. In total, more than75% of education budget goes to salaries and this means that little is left for development and

that large spending in education has increased as a result of FPE. Ministry of Education, (2003). There was a general misconception about meaning of Free Education with the stakeholders particularly the parents assuming that they were no longer required to participate in school activities. Politics too added more confusion when they sent conflicting information to the communities especially on fund raising that it was outlawed and that voluntary contribution were not acceptable .The misconception has persist to date and have undermined implementation of Free Primary Education Program me.

Despite the fact that Free Primary Education has increased access and participation, it has also created considerable problems. Classrooms congestion as preliminary survey done so far shows that existing facilities makes a mockery of Free Education Programs. Ramani, (2005). Also Sifuna, (2004) notes that Free Primary Education has overstretched physical facilities like desks, toilets to the limited and worst affected are girls, physically challenged and pupils in lower primary. UNESCO, (2005) Ramani, (2005) asserts that the cost of Free Primary Education is prohibitive and has the impact of increasing of taxation in the long run. Sourcing of funds to finance Free Education is the real challenge in implementing UPE and a key question that remain is: Is the program me sustainable? Sifuna, (2003) and the Ministry of Education Science and Technology should put down measures early enough in preparation of achieving objectives of FPE. World Bank Report, (2004).

2.5 Enrolment of Pupils in Kenya Primary Schools

There has been a remarkable increase in enrolment and transition rate at all level education in Kenya. Enrolment rate for primary schools now stand at 8.3 million up

from 5.9 m in 2002. The then Permanent Secretary of Education, Prof. Mutahi says "As a sector, we are happy to note that with the realization of a NER of 91.6%, Kenya is on course to realize EFA by 2015. Ministry of Education, (2009). The GER at primary level had risen from 50% in 1963 to 105.4% in 1989. However, the GER had declined to 87.6% in 2000 before climbing to 104 in 2002 following the implementation of FPE. The enrolment of girls in 2001 represented 50% of total enrolment and the total number of Kenyans who were enrolled in various educational levels in 2002 stood at 7.4 million or 25% of population. The high level of access and enrolment do not themselves guarantee that the achievement of all children to have access to and complete Free Primary Education of good quality ….. "It is necessary that pupils proceed through education ladder as smoothly and efficiently as possible. All countries particularly those with very low level of primary participation are concerned that their limited resources are well utilized while time spent by pupils repeating classes is not wasted. It is undeniable that the efforts to reduce effects of repetition and dropout are crucial part of any UPE strategy in countries where resources are limited, schools occupied by repeaters may keep others out of school. Again, there are many over aged and under aged children in primary schools. Most of the under aged children who should be in Early Childhood Development Centres (ECD) aged 5 years and below are enrolled in class 1 as parents skip Nursery school payment to benefit from FPE. Over enrollment has increased tremendously in the last 8 years with annual increase of about 20% with government policy of FPE.

Despite the fact that there has been an increase on enrolment, there are a number of factors that hinders the attainment of full enrolment of pupils. Gabriel and Chau,

(1980) there are two factors that influences enrolment and Birgen, (2003) adds a third factor .Therefore three factors that influences enrolment are:

1. *Demographic Trends*

Population growth which is measured as a ratio between births and deaths, immigration and emigration has an effect on education. Natural rate of population growth is influenced by fertility. Population trends are the basis of all forecasts of the number of enrolment when the statistics of births and deaths are reliable. Todaro, (1989).

2. *Attitude of Different Social Groups*

Anderson, (1970) found out that the attitude of different social groups influence enrolment. This involves attitude of various social groups towards further schooling. There is also regional disparities where enrolment from different regions vary. Study indicates that the number of pupils going to school depend on several factors such as parents occupation, social origin ,the family income, size of the family, religion and distance of the place of residence from school.

3. *Government Educational Policy*

The government in an attempt to necessitate schooling and education among different social groups to bring about parity in enrolment. Free Primary Education Policy is one factor. (Birgen, (2003).

Age structure and school enrolment rates:-

This enables to estimate the relative size of school age population. It also enables to calculate the school enrolment rate in order to try to answer the following question:-

What proportion of children receives education?

To answer such a question one need to calculate the NER *(Net Enrolment Ratio)*

That is.

$$\text{No. of } \frac{\text{pupils in 6 – 13 yrs of age in primary}}{}$$

Total 6 – 13 yrs old population

Measuring Access to Education:-

Carron and Chau (1981), also talked of economic accessibility that is the cost of parents sending their children to school and socio-cultural accessibility that is parents' attitude regarding the need to send children to school as factors that influence enrolment a part from demographic trend of population growth measured by ratio between birth, death, immigration and emigration . All are basic for projection of the number of enrolment with readily available statistics of birth and death (Todaro, 1989). In Konoin District, birth rate is a major contributor. Education planner is taking into account factors that influence the number of teachers demanded in future.

Access to education can be measured by means of measuring admission by Cohort. This is obtained by monitoring a Cohort of children born in same year say 2002 and counting how many are admitted to school successively at 5 years, 6 years then 7 years etc. So as to get a figure for total admission.

What proportions of children are admitted to school?

Johnstone, (1982) gave a suggestion on calculating proportion of children admitted to school and recommended three indicators namely:- How many years on average does a child spend in primary education?, what is the average grade he/she reaches within educational level and what proportion of pupils admitted to this educational level, complete primary educational? The 3rd indicator is more mean fully as it indicates the proportion of children who have successful completed primary education.

2.6 Enrolment projection

Enrolment can be projected using mathematical method. Mehta, (1994). This require aggregate data of at least five years. Total enrolment can be projected by use of Linear

Equation Method that is Extrapolation of the past into future and making an assumption that the past enrolment trends will remain into the future.

Demography has influence on enrolment. The study intends to project enrolment by use of enrolment data of the last five years base year being 2010. Mehta (1995) asserts that there are three methods of enrolment projection.

i. Rate of growth method:

This require enrolment data at two points of time and is therefore the simplest technique of enrolment projection .Total enrolment of different levels of education can be projected using this method.

The formula is

$$R = \frac{1\ (En-Eo)}{n} X\ 100$$

Where:

r- Annual rate of growth

En- enrolment in current year

Eo - enrolment in the base year

n- number of intermediary year.

ii. Methods of least squares

According to Mehta.(1995), the method is used to make future projection on the bases of the past trends and is applicable when time series data is available .It is a graphical methods that calls for the drawing of a straight time that touches a

maximum of plotted points the line is popularly known as regression line is then extended so that future enrolment can be worked out.

iii. Enrolment Ratio Method.

Mehta,(1997).According to him, this method of enrolment captures demographic pressure and is based on Enrolment Ratio. It is calculated on the bases of the past data, and is extrapolated into the future by applying suitable mathematical techniques. From the literature review under enrollment it has indicated that there is an increase in the number of pupils at all levels of education system despite the fact that the Grade Enrolment Ratio at other levels has been on decline .In view of this, the current study set out to forecast the enrolment in 2015 and to establish the number of teachers who would be demanded by them.

2.7 Staffing Demand

Staffing involves recruitment appointment deployment and teachers transfer done along guidance provided by T.S.C. After recruitment, teachers undergo posting to various schools. Estimating teacher demand means forecasting the number of teachers necessary to teach forecasted number of pupils. The present study set to determine the number of teachers required in the year 2015 based on pupils' enrolment in Konoin District. Atkinson (1983) pointed out the experience of 1950's and 1960's showing how critical teacher supply planning is at the mercy of changes that occur quickly in the rate at which teachers leave the profession. He talked of wastage rate as a problem to education planner because they are powerful influence that affect teacher demand but cannot be predicted with confidence and accuracy. A fall in wastage rate among teachers is an indicator that more teachers are retained in the profession and there is likelihood that students completing teachers' training institutions may not be

employed and on the other hand, increased in wastage rate results in teacher shortage. Wastage due to retirement can be easily predicted because there are records showing age structure of teachers' profession in a given:-

a) Data parameters on staffing:-

The TSC has to observe crucial data parameter in regional distribution and gender balance. Natural attrition inevitably causes teachers shortfalls. Others are leave, sickness or death. Also discipline takes a further through summary dismissals other are retirement when a teacher reached mandatory age of retirement 50-60 years.

b) Determination of staffing:-

For primary schools, current practice has to determine teachers requirement on the basis of:- Number of classes in the school allocating a teacher for each class that is . one teacher per class. *(Source Teachers Image vol. 9 2004 page 31-staffing get in the picture).* On the other hand for instance, one key challenge that affects staffing in Siaya District is the high number of teachers leaving the service. The D.E.O Siaya District reported that over past few years the number of teachers retiring has been increasing. In 2005, 77 teachers left the service, 44 in 2006, 78 in 2007, 98 in 2008 and he projected that 132 teacher will leave the service in 2009. Source teachers image vol.16.2009 page 30 - Teachers shortage, HIV/AIDS affect Nyanza. *(M.O.E strategies plan 2006-2011),* Republic of Kenya 2006.

c) Attaining Equity in teacher Deployment:-

Current teachers' recruitment is demand – driven before the freeze in 1997. This has had adverse effect on deployment of teachers to institution of learning. Locally based teacher recruitment is a key to addressing current problem and needs to be supported by clear guidelines as it faces hurdles as results of practice and influences that may

not improve current situation of staffing. Consequently, the need for the recruitment of additional teachers require urgent consideration in view of the high PTR currently experienced in many schools in Konoin District and Kenya in general.

d) Why project teacher demand:-

Atkinson (1983) observed that teachers supply planning is at the mercy of changes occurring in the rate at which teacher leaves the profession. Others he cited are future wastage rates which may be powerful influenced by changes in demographic or social- economic factors which cannot be predicted with confidence but have immediate effects while Sheehan (1973) pointed out that the major determinants of teachers demand is the number of students attending school and such demand is based on enrolment. The other factors that affect the teachers demand are:- Number of students taught and teaching load and teacher-pupil ratio as one teacher to one class apply.

2.8 Teachers Projection based on Pupil-Teacher ratio.

Pupils' enrolment statistics' assists in calculating projection on staffing demand.

Pupils –Teacher's ratio method:-

The steps for projecting the teacher requirements is calculated as follows:- total no. of required staff and the net additional required in the year

Net additional staff is obtained by taking annual replacement of teachers on basis of resignation retirement, death etc.

Formula $Tt_s = \frac{Et_s}{Rt_s}$

Where:-

Tt_s =No. of teachers at a particular time (t) and for a particular school (s)

Et_s _= Enrolment at a particular time (t) for a particular school (s)

Rt_s = Teacher - pupils ratio at a particular times (t) for a particular school (s)

Republic of Kenya 2006 M.O.E strategic plan 2006 -2011 set commitment to achieving appropriate teaching load for primary school teachers while the TSC in its efforts to review staffing in schools to reflect:- Rising school enrolment as a results of free primary education, long absences of teachers due to illness leaves etc and the need to achieve optimal utilization of teachers among others.

The TSC thought of putting mechanism in place to ensure relief of teachers in the event of long absences and a policy has been made to check on government commitment to provide teachers to schools only with a fixed PTR as it is uneconomical to provide teachers for schools that cannot attain fixed PTR.

Kamotho (2003) noted that the government has undertaken a continuous update on studies enrolment in schools get number of teachers' shortage or surplus.

According to Konoin District D.E.O's strategies of 2009 it was observed that there 91 public primary schools in Konoin District. The total number of teachers in the two educational zone of Mogogosiek and Koiwa were 339 manning 297 streams and this translates to understaffing of 54 teachers which is even very difficult to address with staff balancing as enrolment of pupils is ever rising.

According to Republic of Kenya (2006) a critical challenge facing education is related to staffing and inequitable distribution of teachers at primary school level. This is because of upsurge in enrolment that calls for more teachers. The Gross enrolment rate rose from 6,314.726 to 7614326 after introduction of FPE. These represented

22.3% increase nationally. The number of teachers however has remained unchanged at absent 180,000 and could be less due to natural attrition and others who have left the services.

The effort by T.S.C to decentralized teachers recruitment by changing the policy from supply driven to demand driven to address current problem of understaffing but there is need to additional teachers to reduce high PTR currently experienced in primary schools. The rate of infection among teachers as a results of HIV/AIDS has threaten the supply of teachers in school *(T.S.C teachers image vol.10. 2005).*

The overall teachers' death increased from 1,216 in 1997 to 2,133 in 2001 while teachers' mortality among primary school teachers rose from 191 in 1997 to 336 in 2001. The government is committed to fostering quality education by providing the necessary infrastructure and adequate qualified teachers though the current situation nationwide is that, many schools do not have adequate teachers. The respond to these challenges, MOE and TSC have undertaken to continuously update data on student enrolment in each school, number of teachers on leave and teachers' shortage or surpluses. Republic of Kenya, (2006) asserts that with introduction of FPE in 2003 and the freezing of teachers recruitment resulted in high PTR exerting pressure on human resource .It is for this reason therefore that the current study set out plans to avert teachers' shortage to determine teachers demand putting into consideration enrolment, wastages and pupil teacher ratio among others.

Ayot and Briggs, (1992) Pointed out a teacher projection method called pupil-teacher ratio method using the formula:

Where;

Tts = number of teachers at a particular time (t) and from particular schools (s)

Ets = enrolment at a particular time (t) and for a particular school (s)

Rts = Teachers-pupil ratio at a particular time (t) for a particular school (s)

According to Mehta, (1997) steps in teacher projection follow:

[a]calculation of total number of teachers required.

[b]calculation of net additional teachers required during the year.

Net additional of teachers is then obtained by considering the annual replacement of teachers on account of attrition like death, resignation, retirement among other things on the part of teachers.

Teacher focus is therefore an important exercise that aims at providing the right number of teachers to match the number of pupils in the target year. Enrolment is critical in forecasting the number of teachers required at future date. The current study utilized PTR method in an effort to establish the number of teachers required in the year 2015. The literature revealed the following gaps which the study sought to fill.

Gaps the literature revealed:-

The literature revealed the following gaps which the researcher intends to fill. There are limited studies done on staffing projection in Kenya, the cited literature review emphasis on general expected rise in enrolment due to demographic and social economic factor and the need of having adequate manpower to match pupils ratio as even with staff balancing staffing is difficult to address, the study therefore tries to project the number of teachers in Konoin District in the year 2015 based on enrolment in the target year guide by Human Resource planning forecast model by *(Parnes MRP 1962)*, The introduction of FPE created a need for additional teachers to cater for increased enrolment, physical facilitates in schools have a high impact on staffing – teachers combine classes to reduces number of streams. Giving wrong impressions

that schools do not require additional teachers. This calling for manpower projection, there is also a growing shortage of teachers as a results of absenteeism due to HIV/AIDS scourge – this has reduce number of teachers and that there is incidence of teachers changing jobs leading to teachers shortage.

2.9 Summary

According to Republic of Kenya, (2006) the quality of education offered is greatly hampered by teachers shortage in various schools across the country. The problem of teachers shortage is expected to worsen with the anticipated increase in enrolment occasioned by the Free Primary Education which came into effective in 2003.As a result of rapid growth of primary sub sector, total enrolment in primary school is projected to grow and so have the need for more teachers.

The present study set out to plan for the number of teachers required to teach pupils who are expected to be in primary school in the 2015 so as to alleviate the problem of teachers shortage. Luseno, (1999) projected enrolment rates to determine gender equity in Kenya secondary schools while Atkison, (1983) made a study to establish the number of teachers require to teach a particular number of pupils, therefore, limited studies have been done on teacher projection in Kenya calling for a need for a study on a teacher forecast to be carried out. The study attempts to forecast the number of pupils and teachers in Konoin District in the year 2015 based on Manpower Requirement Approach by Thompson, (1981).

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction to the study

This chapter describes: The study area, research design, study population, sample size, sampling techniques, data collection instrument, validity and reliability of research

instrument, data collection procedure, data analysis procedure and ethical consideration in research.

3.1 Study area

The study was carried out in Konoin District - Bomet County. The District borders Bomet District to the South, Kericho to the North, Bureti to the west and Nakuru to the East. The District is sub-divided into six education zones of Koiwa, Mogogosiek, Cheptalal, Saosa, Kimulot and Embomos. The main economic activity of the people in the area agriculture with mixed farming being widely practices and tea being main source of income.

The District was chosen for the study because the research intended to forecast the number of pupils who would be in primary school in the year 2015 and to determine the numbers of teachers required to teach the forecast pupils. The District covers an area of 879 Km^2 with a total population of 139,114 people living in 31,103 households with a density of 158 persons per square kilometer. Republic of Kenya, (2009). The pupils born between the years 2002 to 2009 were taken as they are expected to be in primary school in the projected year. The National statistics of August 24^{th} /25^{th} 2009 census was used to get the number of children born in subsequent years between 2002 and 2009 and were 35,508 that is 18,214 males and 17,294 females as shown in table 5.0.

The decision to choose the district among other district in the county did not minimize the importance of other district in the county as advocated by Taro, (1970) that from the central limit theories under certain condition the sum of independent random variable is a systematically normal thus the sum will approach a normal distribution as the number of n of random variables that are summed become large .similarly in

population of size N, the probability of choosing anyone sample will be one out of N and this means that the chance of choosing any sample will tent to normality. Taro (1970) cited in Koskei, (2001; P54).

3.2 Research design

Orodho, (2003) define research design as the scheme outline plan used to generate answer to research problem. It is thus the arrangement of condition for collection and analysis of data in a manner that aim to combine relevance with research purposes while Kothari, (2003) put it “it constitute the blue print for the collection measurement and analysis of data”.

The research design adopted by the study was descriptive survey design. It was appropriate for the study because the researcher intends to make prediction in form of projection of the number of teacher and pupils in primary school in Konoin District in five years time taking the year 2010 as a based year.

3.3 Target population

One staff each from Central Bureau of Statistics (C.B.S) and D.E.O staff in Konoin District constitutes the target population for this study.

3.4 The Sample

The D.E.O staff and Central Bureau of Statistic in Konoin District formed sample for the study. The researcher collected and analyzed data that would assist in education

planning. The two officers in the DEO's office and the CBS are representatives and forms sample size of the study.

3. 3 Sampling Techniques

The study used purposive sampling technique by choosing the 2009 National Census Statistic. Again children born in 2002 -2009 are taken as they are expected to be in primary school in the projected year. Lastly, District statistics on teachers was sampled for the study and one education Officer in charged of statistics and one TSC unit representative were chosen because they had relevant information to the study. The purpose why purposive sampling was used was that it allowed the researcher to use cases that had required information in respect to study objectives *(Mugenda and Mugenda, 1999)* and that purposive sampling as a non-probabilistic sampling procedure is limited to measurement, proof and generalization. However, generalization done using it could be useful to some extend in this study.

3.6 Data collection instrument

The study utilized questionnaire, interview guide and document analysis guide.

3.6.1 Questionnaire

This is a research instrument of data collection. Kombo and Tromp (2006) gave advantages of questionnaire as follows:– it saves time as each item is design to address specific objective, it hold confidentially of respondents. A close ended and open ended item dealing with teachers' number and wastage was developed to collect data from D.E.O's office and T.S.C unit in the District. The disadvantages of the instruments are that response rate could be quite low, no direct contact with

respondents, no opportunity to ask further information and no clear reasons for incomplete responses and are subjective in nature because information obtained is based on personal ideas and experiences.

3.6.2. Interview schedule

An interview schedule was designed to capture data on teachers and students from D.E.Os offices in change of statistic and T.S.C unit at the District. This helped clarify questionnaire. A researcher designed a semi-structured interview with open ended items. The advantage was that, questions were flexible, respondents felt part of the team as there was no rigidity and were free to respond in a relaxed atmosphere. However, the disadvantage was that it was time consuming, not systematic as respondent commented on issues haphazardly and was difficult to systematized and analyzed the data. The instrument was not an in depth investigation on factors affecting pupils numbers and staffing demand in the District.

3.6.3 Document analysis

Relevant document in the District like District Population Census record was obtained so as to access record of children born in 2002 – 2009 for they would be in primary school in 2015. The Central Bureau of Statistics and D.E.O's office statistics of pupils' enrolment, transition rate records on teachers assisted verified obtained data from questionnaire and interview. The advantage was that it allowed one to get first hand information from official documents and it was accurate.

3.7 Validity of research instrument

The researcher tested the validly of research instrument before using in the field. He consulted an experienced researcher and supervisor in the school of education Moi University. The suggestion and recommendation enabled researcher obtain a reliable research instruments.

3.8 Reliability of research instrument

Kerlinger, (1983) defined reliability as the consistency that a research instrument demonstrate when applied repeatedly under similar conditions. The researcher carried out a pilot study at Bureti District. The questionnaire was pre-tested to a sample of respondents.

The researcher administered the questionnaire twice to the Education Officer from the District within an interval of two weeks. Response of the items in the questionnaire was assigned numerical scores. The coefficient of correlation (Pearson-r) between the scores of the two responses from the questionnaires administered on two different occasions was used in the calculation of the reliability coefficient using Pearson moment correlation coefficient

formula:-

$$r = \frac{xy}{(x^2)\,(y^2)}$$

A pearson correlation (r) of 0.82 was found and this was considered high enough to be accepted as a reliable measure of internal consistency of the item. Kerlinger ,(1983) This measured the degree and strength of relationship between pair of variables.

3.9 Data collection procedure

The researcher got a letter of authority from the school of education, Moi University and upon acquisition of this letter the researcher acquired a permit from the National Council For Science and Technology before proceeding to the field to collect data. The researcher wrote a letter to the D.E.O office Konoin District to request for their participation in the study. A letter was also written to the District Central Bureaus of Statistics' office and later the researcher followed those letters to fix interview dates

and subsequently collection of data. Data for the study was collected between the month of March and April, 2011. The researcher administered questionnaire to all respondents, carried out interviews and analyzed relevant documents. Each of the respondents were given amble time to respond to the questionnaire, after which, the researcher collected the completed questionnaire. All respondents were assured of confidentiality that their responses would be used for the purpose of research only and if need be to disclose, their consent could be sought.

3.10 Data Analysis Techniques

Data obtained from DEO's office in charge of statistics, TSC Unit and that from CBS were examined. Data collected through questionnaires were coded and scored manually. Descriptive statistics that is frequency distribution table, graphs, percentages and averages were used. These enabled the researcher to establish trend situation as it was five years ago, base year being year 2010 and this enabled to make forecast in the year 2015. Again, the researcher made a forecast in enrolment of pupils in the target year 2015 then determine staffing demand in that year.

3.11 Ethical Issues

The researcher conducted his work and behaves professionally. This is because the researcher is a person of great integrity and could face laws which prohibit unethical behavior. The researcher will seek a letter of authority to perform his work from relevant authority before he visit places to collect data and explained the purpose of the finding to respondent and informed them the finding will protect their confidentiality privacy and that their names won't be disclosed and would be kept anonymous.

3.12 Summary

The researcher employed a descriptive survey method that enables them to collect relevant data, to provide meaningful answers to the research questions.

According to Leeds (1974) and Daramola [1990] the descriptive survey method looks carefully at a phenomenon and describes exactly what it is.

The target population for the study was one staff each from the central borehole of statistics (C.B.S) and D.E.O's staff in Konoin District. The sample consisted of the D.E.O staff and C.B.S. staff purposeful selected to form representatives. The research – designed Questionnaires that was used to elicit information from the respondents. The first part section B touches on pertinent information on gender, age bracket, issues on pupils' enrolment, issues on pupil-teacher ratio, establishment of primary schools in the district and issues on teachers' shortage.

The questionnaire was content and face validated by specialist in instrument construction in the school of education, Moi University to ensure that it was to standard of the people designed for. The reliability of the instrument was established by a pilot testing conducted two times in Bureti District. The results of two tests were compared and a correlation co-efficient of 0.82 was gotten which was regarded as being high enough for the reliability of the instrument. Then researcher also observed ethical issues as concern his work and behavior A letter of authority to perform the research was sought and granted before visiting places to collect data, he explained the purpose of the visit to respondents, informed them that their response was to be kept confident, private and anonymous and if need be their consent was to be soughed

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Introduction

This was designed to answer two main questions: Pupils' enrolment in the year 2015 and corresponding number of teaching staff demanded to teach this number of forecasted pupils. Data was collected using questionnaire, interviews and document analysis from District Education Offices and Central Bureau of Statistics. This chapter addressed the following issues as set by the following objectives of the study. Staffing in primary schools, pupils enrolment, Pupils-Teacher Ratio, primary schools establishment and teachers shortages.

4.1 Primary School Teachers Establishment

This study intended to establish the number of teaching staff demanded in primary schools in Konoin District in the year 2015 based on forecasted Pupils enrollment where the year 2010 is treated as base year.

4:1:1 Proportion of Teachers under T.S.C by gender

Table 4:1 shows the number of teachers proportion under T.S.C based on gender of primary school level in Konoin District in the year 2010.

Table 4.1 Proportion of teachers under T.S.C based in Gender in the year 2010.

GENDER	NO. OF TEACHERS	PROPORTION PERCENTAGE
Male	461	56.63
Female	353	43.37
Total	**814**	**100.00**

Source D.E.O'S statistics Konoin District 2010.

The above table shows a skewed disproportionate strength of teachers in respect to gender. The number of male teachers is much higher than that of female teachers. The proportion of female teachers under T.S.C in the District was 108 less than proportion of males. And there is need to encourage more female to enroll in teacher training colleges to march that of male in future. In total, primary school teacher establishment were 814 teachers at primary schools in the District. The female teacher stood a 353 which was 43.37 percent (%) while male teachers were 461reflecting 56.63 percent.

In conclusion the figures revealed un-proportionate gender balance among teachers in public primary schools in Konoin District and guidelines based on gender should be introduced in recruitment process of teachers so as to gather for gender equity for currently teacher recruitment is on demand driven (Republic of Kenya 2006).

4.1.2 Academic Profile of teachers

Table 4.2 Academic Profile of teachers' qualification

ACADEMIC DEGREE	TRAINED AS A TEACHER	TOTAL TEACHERS PERCENTAGE (%)
P1. Certificate	436	40.22
Diploma	260	23.99
Bachelors	118	10.89
Masters	None	0
P.T.A Teachers	270	24.90
Total	**1084**	**100.00**

Sources: DEO's statistics Konoin District 2010

Out of 1084 teachers, 814 are trained professional and employed by TSC with relative lower percentage of 24.90% who are either trained or untrained and are equivalent to 270. Most of the primary school teachers in Konoin District have at least PI teachers' certificate and are 436 in number that is 40.22 %. In addition, more than half of PI teachers who are 260 in number makes 23.9% are diploma holders in either Special education or Early Childhood Education. There are 118 teachers with Bachelor of Education degree and represent 10.89% of the teaching force. A comparative 0% of the teachers have masters' degree in Education but quite a few have enrolled and are continuing student in Masters' degree and the first lot are expected to graduate in the year 2011.

From the table above it implies that the majority primary school teachers in Konoin District are trained P1 certificate teachers and a relative higher percentage have enrolled in diploma and degree courses in various colleges an indicator that P 1 certificate course is dwindling and becoming irrelevant calling for the M.O.E to reverse course and start diploma course the primary teachers training colleges so as to have adequate qualified personnel in future. This was share by the team of Educational Management Society of Kenya conference held at the University of Nairobi, Kenya Science campus that;

"certificate holders could soon loose their teaching jobs"

because a number of teachers with better qualification are in the market. The theme was Education in Millennium Development, New Constitution and Vision 2030. *(Standard Newspaper Friday, April 29th 2011).* Where the Minister of Education Prof. Sam Ongeri was quoted to have said, "Teachers would soon be required to specialize their training on either Sciences or Humanities. We want teachers to be perfect in specific areas than being juncks of all trade". The conference planned changes as follows:- upgrade primary teacher colleges to offer Diploma as the minimum level, teachers would be required to specialize their training on either Science or Humanities and Education Act, TSC Act, Universities' Act and KNEC Act is said to be in consistent with the new constitution. In essence, the Parliamentary Committee on Education Chairman Hon. David Koech called for review on outdated laws in education sector. Republic of Kenya (1992) indicates that the increase demand for education naturally leads to increased demand for teachers. Kamunge report of 1988 indicated that the expansion of secondary education brought about demand for more better qualified teachers.

4.1.3 Distribution of primary school teachers by age-group

The following table shows TSC teachers' distribution in Public primary in Konoin District by age. The number of teachers' strength in the year 2010 as per annual education statistics. Primary data census form has different scale of age-group A, B, C and D

Table 4:3 Distributions of primary school teachers by Age-group

AGE-SET	AGE GROUP	NUMBER OF	PERCENTAGE (%)

		TEACHERS	
A	29 years and below	136	16.71
B	30-39 years	394	48.40
C	40-49 years	206	25.31
D	50 years and above	79	9.58
	Total	**814**	**100.00**

Source DEO statistics Konoin District 2010.

The total number of TSC teachers in Konoin District were 814 and represent 75.1% of teaching force, the remaining 24.90% being PTA teachers. The number of those within age bracket of 50 years and above were 78 representing a percentage of 9.58%. Those within the age bracket (40-49 years) were 206 representing 25.31%. The highest numbers of teachers were within the age bracket (30-39 years) and were 394 in numbers representing 48.40 %. A relative small number that is 136 were within the age-group 29 years and below which translated to 16.71 %.

From the above table, it clearly indicates that the whole lot of teachers within age 50 years and above would have retired in the in the year 2015 and expected number to be in service is expected to drop by 9.58 percent and this represents 78 teachers which pose a big challenge to wastage rate among teachers in the District, and would leave teaching profession before 2015 due to retirement or changing jobs. And therefore calls for TSC to provide solution for teachers' shortage to meet teachers demand in the district to anticipate high enrollment of pupils in primary school

4.1.4 Staffing Directorate of primary Division of T.S.C

Teachers in Kenya are hired through Central teachers Services Commission. The primary Division of TSC is headed by Deputy Director answerable to Director of staffing and change with the responsibilities of teachers' management in primary school, primary teachers college, special schools, and Teachers Adversary Center.

TSC core function is to receive teachers for employment which is currently demand driven and decentralized to District Education Board. The Free Primary Education had remove school levies and introduction CDF (Constituency Development Funds) has lead to the establishment of building of more classrooms which has led to subsequent increased in enrolment in school.

The economic survey 2009, shows primary classroom rose from 209,000 in 2008 to 220,000 in 2009, but has not been met with corresponding increase in the numbers of teachers. Currently, there are 219387 teachers in primary school and is established that 65000 more staff are needed to ensure quality leaning as per the TSC statistics (2009)

Primary school are short of 41520 teachers by September 2009.this situation has forced many parent to hire many teachers through Parent Teachers Association (PTA's) to address the deficit of teachers and to help ease overcrowding in classrooms.

Table 4.4 Shows categories of teachers employed by TSC and PTA in the year 2010 in Konoin District

Table 4.4

EMPLOYER	NO. OF TEACHERS	PROPORTION PERCENTAGE (%)
T.S.C	814	75.10
P.T.A	270	24.90

Total	**1084**	**100.00**

Source: DEO's Office Konoin District statistics 2010.

From the table, it implies that TSC is not the sole employer of teachers in Konoin District although staffing in many public schools is the main business of the government but same co-co-efficient are hired by the schools through PTA. This conure well with Kamotho (200) who observed that although staffing in public schools is supposed to be the main business of the government through TSC, schools management also employ PTA and has remained a challenge since the commission was established in 1957. Table 4.4 indicates that the number of teacher employed by TSC was 814 representing respectively 75.10 percent where as 270 teachers equivalent to 24.90 % are employed by PTA of various schools. This happens where schools are forced to provide alternative solution to meet teacher shortage in school implying that there are in-adequate number of teachers employed by TSC in Konoin District and the trend is expected to continue beyond 2015.

4.1.5 TSC teachers' strength in the District

The researcher sought through interviews to establish TSC teachers' strength in Konoin District and the responses were as follows:

- There were 814 teachers in Konoin District as per table 4.4 at the same time table 4.8 on pupils enrolment show high number of pupils enrolled in primary schools in Konoin District in the year (2005 – 2010) the number enrolled primary school keep increasing at 2.58 percent annually. The total number of pupils in public primary schools in Konoin District 32,976 with 16,618 boys and 16358 girls under 978 streams.

- The pupils'- teacher ratio was calculated at 40:1 which was higher than the recommended ratio of 25:1 globally. This implies that the number of teachers available cannot match the pupils' enrolment. The researcher also interviewed personnel in charge of statistics in the DEO's Office and established that more and new classrooms are being built with CDF funds to correspond to the increased in number of pupils in school as a results of free primary education causing teachers shortage.
- The sustainability of gains made through FPE and Constituency Development Fund (CDF) is greatly dependent on effective teacher management in primary school and existing norms is one teacher per class. It was also reported that situation of teaching force in the District was bad and the school management are of the opinion that as a result of ban on school levies, they are unable to recruit extra teachers through PTA.
- Currently, Konoin District is under staffed by 164 teachers and it revealed a serious staffing gap that is difficult to be addressed even with staff balancing as enrollment of pupils is ever rising due to demographic socio-economic factors with limited additional teachers' resource.

From this point of view, the TSC policy of freezing teachers' employment since 1998 cannot sustain the demand for more teachers as it is only allowed to replace those who leave profession due to natural attrition. Another indicator of teachers' strength in the District is that teachers aged 50 years and above are increasing in the number and would be retiring by the year 2015. It is estimated that 78 number of teachers would have retired when the year 2015 arrives posing a bigger challenge to understaffing in Konoin District. Also it was reported that natured attrition inevitably caused teachers

shortage in the District. Others were cited as study leaves among teachers who have enrolled in diploma, degree and masters.

However TSC stated that a District will not be allowed to have more than 2 percent of staff on study leave. Sickness and disciplinary cases takes a further summary dismissed of teachers by the TSC. Another indicator showing teachers' strength in Konoin District was reported by those interviewed as contributed by poor career choice among teachers who had chosen teaching as a last resort after falling to get their first career choices. It was reported that incidence of teachers changing jobs has led to teacher shortage in the District. This calls for the M.O.E to admit teachers who give teaching a first priority in their list of career choices into primary teachers training college in future. However, Okumbe (1999) observed that teachers in developing countries have been conscripted into the teaching profession, thus the profession has two lots of teachers: those who choose profession for intrinsic reason, and those who for reason beyond their control have found themselves in the profession which is not easy to discriminate.

Lastly, those interviewed pointed out absenteeism due to HIV/AIDS scourge as another factor that has reduced the number of teachers and has greatly threaten the supply of primary school teachers in Konoin District .

4.2 Expected number of primary school teachers in the year 2005-2010.

Table 4.5 below shows the expected number of teachers in primary schools in Konoin District in the last five years running from (2005-2010)

Table 4.5 Expected number of primary school teachers over the last five years 2006-2010

YEARS	EXPECTED NUMBER	ANNUAL INCREASE	PERCENTAGE INCREASE
2005	728	0	0
2006	734	6	0.82
2007	738	4	0.54
2008	741	3	0.41
2009	748	7	0.94
2010	814	66	8.82

Source D.E.O's office Konoin District 2010.

The table 4.5 shows year increment in the number of primary school teachers in the District. In the year 2005 and 2006 the expected number of primary school teachers were 728 and 734 respectively reflecting an increase of 6 more teachers which is 0.82%.

The following year 2007, there was an increase of 4 more teachers which reflect a percentage increase of 0.54. In the year 2008, there was an increase of teachers by 3 which translated to 0.41 percentage. There was also an increase of 7 teachers which was 0.94 percent in the year 2009. The year 2010 highest increase of teachers was registered at 66 numbers which was 8.82 percent because the government employed intern teachers.

The annual teachers increase was calculated at 2.31 percent implying that still, teachers' recruitment in the District by T.S.C can not fill the more demanding places for teachers in public primary schools because still the Pupil- teacher Ratio is still high at 41.1. This does not concure with the government policy which advocated for a freeze on teacher employment from 1998. Birgen, (2003)

4:2:1 Computed annual teachers increment in the year 2005-2010

From the table 4.5, it was computed that the annul teachers increments in percentage was established at 2.31%. This was arrived at by taking the average percentage increase in teachers recruited over the last five years which would be useful in calculating the protection of the teachers demand in the District in five years' time that is (2015).

4.3 Teachers survival rate verses wastage rate as efficiency indicators in education system.

The survival rate among teachers is a clear indicator of an efficient education system whereas wastage rate due to natural attrition (death) ,various type of teachers leaves retirement, disciplinary cases resulting in summary dismissed and changing of jobs or career among teacher has contributing to teachers wastage and hence teachers shortfall in the District. This concur well with *(Kamotho,2007)* who attributed teachers wastage in teaching profession to the above number of reasons.

Table 4.6 Teachers' survival rates verses wastage rate in the year 2005-2010.

YEARS	NUMBER OF TEACHERS	ANNUAL INCREASE	ANNUAL ATTRITION	ATTRITION PERCENTAGE
2005	728	-	-	-
2006	734	6	4	0.55
2007	738	4	3	0.41
2008	741	1	6	0.81
2009	748	3	4	0.54
2010	814	7	8	1.7

Source: DEO's Konoin District 2010

The efficiency of education system can be monitored by indicators of teachers' survival and attrition rates. The lower the attrition rate the higher the number of teachers who would be able to survive and better the system is said to be doing. This computation gives quantitative information on the quality of the system. Republic of Kenya 2006 support the M.O.E strategies plan for the year 2006- 2011 targeting to achieve equally in the distribution of teachers and to improve PTR its objective is to ensure that appropriate teaching load for primary school teachers is put in place.

The table 4.6 shows that 4 teachers in the year 2006 left teaching profession and this represent 0.55 percent in the year 2006. Consequently in the year 2007, 3 more teachers left the professional and this represent 0.41 percent. In the year 2008, additional 6 teachers left the teaching profession and this translates to 0.81 percent. In the year 2009, 4 teachers left the service and this was represented by 0.54 percent. Finally in the year 2010, teachers who left teaching in District were 8 and were represented by 1.07 percent.

The implication is that there is a relative minimal number of teachers attrition compared to those who survive in the system as shown in the table 4.6. This is because those who are retiring are relatively small in number and those dying, changing jobs and being dismissed by T.S.C .because of disciplinary cases cannot marched the survivors. Again table 4.3 on distribution of teachers by age group clearly shows that the higher number of teacher falls under age (30-39) implying that they would still in service the year 2015. It therefore indicates that the numbers of teachers joining teaching profession are much higher in percentage and number than teachers' wastage implying that despite teachers' wastage due to attrition there is a

higher annual rate of increases in absolute number of those who survived in the service each year.

4.3.1 Annual wastage rates among teachers in the District

The study utilized Employer Data Based Method of forecasting human resource needs in a Nation (Coombs,1967) and (Psacharopoulos, 1985) The TSC personnel document analysis and interview showed the information of annual losses of workers through dismissal, retirement and death subsequently changing of jobs and various type of cause offer to TSC employees. The existing and future places are in turn recorded to make estimate of represent and further demand of teachers (human resources) by occupation and category. The information was usefully enabling the researcher to cover up with labor force ratio between the teachers and pupils in public primary school in accordance with the need of labor market. It is evidence from the table 4.6 that attrition among teacher in the District was lower than those joining the profession and those interviewed observed the following: First, Retirement: It was observed that retirement of teachers in the District causes teachers attrition. The teachers who had attained the age of fifty five years are expected to retire from service or where they reached mandatory age of sixty years.

The data collected as shown in table 4.3 on teachers' distribution by age group revealed a short of 78 teachers within the age bracket 50 years and above would have retired in the year 2015 causing teacher shortage and wastage and the reason for retirement were noted to be due to sicknesses and others who wished to join business sector of economy. Secondly, Death: This posed another threat to teachers' shortage in the District as number of teachers are lost through deaths annually and the main causes were noted from those interviewed as HIV/AIDs related illness and other

causes were cited as sickness and self-suicide. In Kenya the overall death increased from 1,216 in 1997 to 3,133 in 2001. While teachers' mortality among primary school teacher rose from 191 in 1997 to 366 in 2001. Thirdly, disciplinary cases and subsequently summaries dismissal of teachers by TSC. Those interviewed cited Teachers Service Commission dismissal of teachers as a result of indiscipline cases. The major causes of such cases were cited as: carnal knowledge, chronic absenteeism, insubordination, alcoholism among others. Fourthly, many small and negligible percentage among teachers changing jobs or career was cited by those interviewed as contributing factor to teachers wastage. This shift of profession reported to have been occasioned by poor career choice among teachers. They tend to move and leave profession whenever they find greener pastures and opportunities in there career of choices that have better terms and good remuneration and condition of service are better compared to teaching. Fifth, Job security: The survey published in the International Journal of Vocational And Technical Education asserts the choice of a career is a matter of preferences and as largely determined by attitude" (Daily Nation Monday, March 14, 2011) by Aggrey Mutambo *(amutambo@ke.nationmedia.com)* A larger number of people did not have a passion to be teachers and ended up in the classroom because of job security.

4:3.2 Computed Annual Teachers Wastage rate in the year 2005-2010

The trend in teaching wastage rate as shown in the table 4.6 was calculated by taking the average of wastage rate over the last five years (2005-2010). The annul teachers attrition *(wastage rate)* stood at 0.68% per annum.

4.4 Projection of the number of public primary school teachers in the year 2010-2015

The information presented by the researcher on the number of primary school teachers on table 4.4 computed teachers percentage increment as shown in table 4.5 and teachers survival versus wastage rate as shown in table 4.6 help to make protection on the number of public primary school teachers in the year 2015 based year being the year 2010 with 814 being the number of teachers that year

Table 4.7 the forecast of the number of teachers in the year 2010-2015

YEARS	EXPECTED NUMBER OF TEACHERS USING ANNUAL INCREMENT OF 2.31%	NUMBER OF TEACHERS WASTAGE USING ANNUAL WASTAGE RATE OF 0.68%	EXPECTED NUMBER OF TEACHERS
2010	814	-	-
2011	832	6	826
2012	852	6	846
2013	872	6	866
2014	893	6	887
2015	914	7	907

Table 4.7 utilized annual percentage teachers' increment of 2.31 and annual wastage rate among teachers of 0.68 percent. The total number of teachers in the base year 2010 was 814. In the year 2011, there was an increase of 18 teachers from the base year 2010 giving a total of 832 numbers of teachers. The teachers wastage stood at 6 which brought the expected number of teachers down to 826. The year 2012 reflect anticipated increase of 20 more teachers pushing the expected teacher force to 852 numbers. Likewise the teacher wastage in that year is focused to 6 in number bringing the expected number of teachers to 846. Further more, the number of teachers expected to increase by 20 in number in the year 2013 giving a total of 872 workforce whereas teachers wastage that year was 6 bringing the demand of teachers down to

866. In the year 2014, there would be an increase of 21 teachers bringing the expected teachers in the field to 893 whereas wastage is expected to be 6 in number bringing teachers workforce to 887. Finally in the forecast year 2015, the expected increase in teachers' number would be 21 where the wastage is expected to stand at 7 giving a total of 914 expected teachers. The expected number of teachers after subtracting teachers wastage would be 907. In summary, the expected number of teachers who would be in the field in the year 2015 would stand at 907 numbers and PTR would be 40:1.

4.5 Pre-primary and primary pupils' enrolment

Primary education is universally agreed to be a prime drive of sustainable economy and social development. It further helps accelerate progress towards the achievement of development goals of other sectors in addition to the fact that a well educated populace is a huge asset and a desirable end in itself. Moreover investments in primary education pay handsomely in the long term and have a notable impact in helping reduce poverty and inequality. Recognizing this, the Kenyan government has continually invested in expanding primary education. Over all the five years plan and is well on track towards achieving all of its education related goals and under the millennium development goals.

Kenya follows an eight year primary education circle excluding one year of pre-primary education as per the Kenya education structure. Pre-primary is considered as a starting grade of primary education and it is in the structure of education however in the recent years Early Childhood Development Education (ECDE) has also been emerging as both private and public initiative.

Table 4.8 Enrollment in Primary Education in the year 2006-2010

YEAR OF BIRTH	YEAR OF ENROLMENT	PUPILS ENROLMENT 2006-2010				
		Boys	**Girls**	**Total**	**Increment in enrolment**	**Annual Percentage Increase**
1999	2005	1971	2152	4123	-	-
2000	2006	1905	1826	3731	392	10.5
2001	2007	1885	1969	3854	123	3.19
2002	2008	2278	2209	4487	633	14.11
2003	2009	2328	2176	4504	17	0.3
2004	2010	2338	2269	4607	103	2.24
Total				**25306**		

Source: DEO's statistics Konoin District 2010.

From the table the total enrolment in primary education has increased to 25,306 pupils between the year 2005-2010 with a notable increase in the primary enrolment of an average annual increase of 1.88 percent for the last five years. This increase in primary enrollment has also been accompanied with the enrolment of many under age and over age children in the education system as more children were reported by those interviewed to have started schooling at the age more than 12 years. This concurred with Paul Wasonga Executive Secretary of KNEC when he commended on studies by UNESCO backed Southern and Eastern Africa Consortium for monitoring education quality that on average, primary school pupils are three years older than expected.

4.5.1 Measuring Access to Education

Access to education is first and foremost a question of school location school organization, its geographical distribution distance covered by pupil from home to school cost of parents sending their children to school and social cultural accessibility are factors that dictate pupil access to education. As a result of early or late admission, it may exceed 100% with no assurance that all children have really been admitted to school but by following a cohort of children the researcher was able to measure admission of children born in the year 2002 to 2009 they were taken as they were be expected to be in primary school in the projected year 2015. A Net Enrolment Ratio (NER) was taken because it took into account specific age of pupils enrolled in a particular level of education. The NER was calculated as

$$\text{NER} = \frac{\text{Number of pupils in primary (6 – 13) years}}{\text{Population of pupils age (6-13) years}}$$

From table 4.8, it was calculated that the number of pupils in primary (6-13) years born in between 2002-2009 were expected to have enrolled in primary schools in the last five years and their absolute numbers were 25306 assuming wastage rate due to repetition and drop out this was calculated at annual growth 3.98 in the last five years.

Table 4.9: Shows population of children 6-13 years born between 2002-2009

YEAR OF BIRTH	GENDER		TOTAL	ANNUAL INCREMENT	ANNUAL GROWTH (%)
	MALE	FEMALE			
2002	2218	2028	4246	43	1.00
2003	2298	2221	4519	273	6.43
2004	2403	2167	4570	51	1.13
2005	2370	2336	4706	136	2.98
2006	2299	2237	4536	-170	-3.61
2007	2331	2187	4518	-18	-0.4
2008	1997	1933	3930	-588	-13.0
2009	2298	2185	4483	553	14.07
		Total	**35508**		

Source: Central Bureau of Statistics – Bureti District.

This population is expected to be in primary school in the year 2015. Kenya children are enrolled in standard one at the age of six years and they go through primary school in eight years. The year 2009 National Population Census which was conducted on 24/25August, 2009 was used to find number of children born between 2002-2009 to calculate figure for the last five years so as the annual growth of population was calculated to be used to extra-population into the future.

From table 4.9, it is clear that the total population of pupils (6-13) years born between 2002 to 2009 were 35,508 in number. In the year 2002 the number was 4,246 and the following year 2003 population was 4,519, this represent an increase of 273 children born and 6.43 percent increment. In the year 2004, children born were 4,570 representing an annual increase of 51 children population which translates to 1.13 percentage increase. In the year 2005, saw a population of 4,706 of 6-13 years age children with an annual increment of 136 numbers and the increase percentage was 2.98. In the year 2006, the total population of children born on that year was 4,536 with an annual decrease of 170 numbers and translates to -3.61 percent decrease. The year 2007 and 2008 saw an annual decrease of 18 and 588 respectively than previous years and the year 2009 saw an increase of 553 children born. The average annual increase in population age 6-13 years in the last eight years was 1.07 percent.

4.5.2 Net Enrolment Ratio (NER)

The NER was calculated using formulae

$$\text{NER} = \frac{\text{Number of pupils in primary (6 – 13) years}}{\text{Population of pupils age (6-13) years}} = 1:2$$

And was found to be 1:2 because it was assumed the wastage rate among pupils and mortality on children is low and that pupils are assured to enter class one at six years and leave at 13 years (6-13) years Also Pupils born in the Districts are enrolled within schools in the District and should they leave those from other District are equal to those leaving out.

Table 4.10 Cohort wastage rate among pupils in primary school in the year 2006-2010 measured at classes 5, 4, 3 and 2 respectively.

CLASS	YEAR	PUPILS ENROLLMENT	WASTAGE	NET PUPILS ENROLLMENT	WASTAGE RATE IN %
5	2006	3731	420	3311	11.26
4	2007	3854`	336	3518	8.72
3	2008	4487	416	4071	9.27
2	2009	4504	338	4166	7.50
1	2010	4607	369	4238	8.00

Source: D.E.Os Statistic 2010 Konoin District

4.6 Pupils Wastage Rate

The grade wastage rate is a dual problem of repeating and dropping from an education system it is obtained by dividing the number of pupils who falls to be promoted to a subsequent grade by the original enrolment in the previous grade in the same cohort.

4:6:1 Cohort Wastage Rate in Primary School in Konoin District

Table 4.10 indicates the number of pupil who enrolled in class one in the year 2006-2010. At the same time subsequent wastage rate in terms of absolute number and percentage are shown. The level of access and enrolment do not themselves guarantee that in order for all children to have access to and competent free and compulsory primary education of good quality… its necessary that pupils proceed through primary educational ladder as smoothly and efficiently as possible. Time spent by pupils repeating grade and dropping from education system contributes to poor education system. This contribute lot in terms of underutilization of limited resources

Table 4.10 indicates pupil wastage rate in primary school varies from year to year. In the year 2006 enrolment was 3731 in class one and pupil wastage rate that years was 420 which was equivalent to 11.26 percent likewise in the year 2007 folder enrolment was 3854 with a wastage rate of 336 pupils translating to a percentage of 8.72 while in the year 2008, the enrolment in primary school in the District rose to 4,487 with a higher wastage rate than preceding year with a percentage of 9.27 wastage rate. In the year 2009 enrolment stood at 4504 with wastage rate of 7.50 percent and 4,607 pupils' enrolment in the year 2010.

The implication of Cohort wastage is that repetition and drop out rates has stood at below 10% considerably since 2003 with an annual wastage rate of 9.2%. This imply that very little or no recourses or facility are under utilization by those who drop out or repeated classes. The minister should adopted extended classroom to reach the unreached and fast track promotion of over age children to reduce classroom conjunction and discourage drop out and repetition to some extend the annual wastage rate trend was calculated and stood at 9.20% percent for the last five years and was projected to the year 2015.

4.7 Projected primary school enrolment in the year 2010 -2015

Table 4.11 Forecasted number of pupils enrolled in primary school in 2010-2015

Year	Projected pupils	Projected pupils using	Excepted

	enrollment with annual increase of 1.88 % in the last five years	pupils wastage rate of 9.2% in the last five years	number of pupils enrolled
2010	4607	369	4238
2011	4694	403	4291
2012	4782	400	4382
2013	4871	480	4391
2014	4963	524	4439
2015	5056	572	4484

Table 4.11 shows projected number of pupils expected to enrolled in primary in school in Konoin District in the 2010 – 2015 the annual enrolment rate of 1.88 percent was applied as in table 4.8 on annual growth in percentage on pupils enrolment. Likewise the pupils wastage rate of 9.2 percentage was applied as in table 4.10 and the percentages extrapolated into future giving the expected number of pupils in subsequent years running from 2010-2015, base year being 2010.

From table 4.11, the expected number of pupils to enroll was 46.07 before some either drop out or repeated classes. In the year 2011, there would be an increase of 87 pupils from the previous year and after subtracting the wastage of 403 pupils, the expected number of pupils enrolled would be 4291. In the year 2012, the expected enrolment would be 4382 pupils since there would be an annual increase of 88 pupils than the previous year and a total of 440 wastage among pupils would be registered. Subsequently, in the year 2013 and 2014, the annual increase in the number of pupils would be 90 and 92 pupils respectively before wastage of 480 and was subtracted giving expected number of pupils enrolled to be 4,391 and 4,439 in the two years respectively. Finally in the year 2015, the expected number of pupils to be enrolled would be 4484 after 572 pupils forming wastage in primary school was subtracted.

The implication is that out of 35,508 school age population of children born 2002-2009 as per 2009 National Population Census those expected to enroll in public primary schools in Konoin District between the years 2008-2015 would be 35,585 pupils. This clearly indicates 77 more pupils would be able to go through education system showing a closing non-schooling gap in the District.

4.7.1 Non-school Gap

The non-school gap is the different between estimated population of appropriate age – group and the number of pupils enrolled in the educational level corresponding to that group that is. apparent non-schooling gap.

$$\frac{P\ (6 - 13^{+}) - NPR}{P\ (6 - 13^{+})}$$

a. $P\ (6 - 13^{+})$ - Populated of age group $6 - 13^{+}$ should be in school minus.
b. $P(6 - 13^{+})$ – Those who are in primary divided by
c. $P\ (6 - 13^{+})$ – Population of age – group in school.

Wako, (1988) asserts that non-schooling gap refers to the ratio of children who have attained the school-going age but fail to enroll in the formal school system. The children who were born in 2002-2009 would be in the school in 2015 and would be 35,508 in number as per 2009 National Population Census Statistic. Those born in the 2002 were expected to be in class one in the year 2008 because Kenyan children enrolled in standard one at the age six years and move through the system in eight years and would be 13 years by 2015 when they are expected to be in standard eight, while those born in the year 2009 are also expected to be in education system and would be in standard one and would be six years. Likewise those born 2002 -2009 would be in primary school in 2015.

Table 4.12 Non-schooling gap from 2005-2010.

YEAR OF ENROLMENT IN CLASS ONE	YEAR OF BIRTH	POPULATION OF CHILDREN	NO. OF SCHOOL AGE EXPECTED TO ENROLL	NON-SCHOOL GAP	NON-SCHOOLING GAP IN %
2008	2002	4246	4071	175	4.12
2009	2003	4519	4166	353	7.81
2010	2004	4570	4213	332	7.26
2011	2005	4706	4387	319	6.77
2012	2006	4536	4540	+4	0.09
2013	2007	4518	4698	+180	3.98
2014	2008	3930	4860	+30	23.66
2015	2009	4483	5026	+547	12.11

Source: Central Bureau of Statistics. Bureti District and DEO's office Konoin District

From table 4.12, in the year 2008 the Non-schooling gap was 4.12 percent some population of children age group 6-13 + who should be in school were 4246 yet those who enrolled in primary were 4071 children. In the year 2009, there was a non-schooling gap of 7.81 percent since the number of children population age group 6-13 who should be in school were 4519 yet those who enrolled in primary school were 4166 children.

The year 2010 registered a non-schooling gap of 7.26 percent with children population 6-13 years of 4,570 and those that enrolled were 4238. The year 2011 would see population of children aged 6-13 years of 4,706 yet those who are expected to enroll would be 4,387 with a non-schooling gap of 6.77%. The year 2012 and 2013 would see children aged 6-13 years at 4,536 and 4518 respectively with corresponding expected enrolment of 4,540 and 4,698 reflecting non-schooling gap of +0.09 and +3.98 percent respectively. Likewise, the year 2014 and 2015 clearly indicates a deviation from the normal trend over the previous four years in that

population of children aged 6-13 years who would be in class two and one would be 3,930 and 4,483 respectively as per 2009 census yet those who are expected to enrolled would be 4,860 and 5026 respectively that is 23.66 and +12.11%. This is an indicator that non-schooling gap would be closing to zero if the government further declares primary school level of education free and compulsory. This progressive increase in primary school enrolment demands for high manpower and concurred with the then Minister of Education, Prof. George Saitoti asserts that, “we will not be content until every child or primary school age is enrolled”. The Ministry is committed to attain UPE and EFA that is its children youth and adults by the year 2015 as such, Kenya government policy to achieve UPE is within the wider International developments. The declaration of human rights adopted in 1948 declared that: “Everyone has a right to education and despite various logistic problems that seems to be hampering a successful implementation of FPE, the policy sounds commendable”.

The implication is that FPE launched in 10th January , 2003 by the Kenya government was developing appropriate response for implementation of FPE to outline concrete guidelines for smooth and effective implementation of ensuring free or universal primary education within the wider international development and reality of delivery of the pre-election pledge in Kenya has becomes a reality as the non-schooling gap is slowly closing to zero if the government further declares primary education compulsory, but still FPE in Kenya need a situation analysis as it is much of political expediency rather that a well thought out planned reforms as the mere abolition of levels in primary school is not a solution in turning around high dropout, low retention and transition rates. But so far in 2002, the rate of enrollment of primary school level were much below 50% standing at 5.8 million only to realize enrolment

of up to seven million after the government declare FPE. But still the government has a lot of challenges similar to those faced by previous government, the attainment of UPE will continue to be illusionary as there are other additional underlying factors responsible for children not attending school. The government has come in full support and address this pertinent issues:- shortages of teachers, improve teaching and learning facilities, change socio-cultural perception that it is better to educate a boy than a girl, managing admission and discipline of over age pupils from diverse background, improve financing of FPE to sustain itself and not depend on donors, smooth implementation of FPE programmes by close checking and training head teachers in schools on financial management of FPE funds among others.

4:7:2 Reasons for apparent closing non-schooling gap in Konoin District in the year 2010-2015.

World declaration on Education (1990). Education for All: A pipedream realized through Free Primary Education. The Kenya policy to achieve UPE has to be seen within development in the wider international context. The Dakar framework reaffirmed the vision of the world declaration on education made in Jomtien, Thailand in 1990. The declaration stated, “All children, young people and adults have fundamental right to benefit from education that will meet their basic learning needs”. The FPE programme introduced by the Kenyan government in 2003 has opened doors to millions of children who would have missed a chance and places to get education. In Konoin District, the substantial expansion of education resulted in increase in participation by groups that previously had little or no access to schooling for the majority who are poor. From those interviewed, the payment of school fees had been preventing a large portion of children from attending school. Parents also were reported to enroll underage in primary schools as there is no age limit for admission in

FPE programme and in so doing, benefit from FPE instead of paying for their pre-school education. This has ensured a more than 100% enrolment as a result of early or late admission with no assurance that all children have really been admitted to school. The widespread use of low-cost FM transmitting stations and digital radio systems that transmit via satellite or terrestrial cellular networks have been implemented in most parts of Kenya. Again, there are cheap portable radio transistors. In Konoin District, those interviewed mentioned Kass and Chamge FM radio stations for focusing and educating the community of Kipsigis sub-tribe of the larger Kalenjin.

People are able to reserve local culture and language, provide emergency medical services and deliver formal and non-formal education. This media and technology is cost free, cost efficient and cost benefit. The concept of communication media, change and technology sometimes have technical affiliation to respected public Universities' resource persons and educational programmes making people change their attitudes and give priorities to enrolling their children in formal education. Parents' socio-economic status like parental education level was mentioned to have a major contributing factor towards higher children enrolment in Primary schools in Konoin District. Those interviewed mentioned that parents with higher level of education are more likely to enroll or encourage their children to school and strive to ensure that they complete their studies because they appreciate the importance of education in their children's life. On the other hand, parental attitude toward female education has made it possible in Konoin District to have high number of girl's enrolment because they are likely to accept the idea of continuation of schooling for their adolescent mothers after pregnancy.

4.8 Primary schools establishment in the years 2006 -2010 in Konoin District.

The number of classrooms available in a school is a facility that influence the quality of education. Some schools faces shortage of classrooms in the District and have to introduce shift system. The number of public primary schools were 91 as per DEO's 2010 statistics Konoin District with 814 teaching force.

The community has the responsibility of planning and budgeting through the School Management Committees (SMCs). The projected number of teacher in the year 2015 would be 907 and pupils' enrolment would be 35,585. Therefore pupils-teacher ratio is calculated at 40:1 and this revealed that increased number of schools need teachers in the District enrolment keep increasing.

This was sought to find out annual percentage increase our last five years such that the finding could be used to project the number of primary schools establishment in the year 2010-2015.

Table 4.13: Primary schools establishment from the year 2005-2010

YEAR	NO. OF PRIMARY SCHOOLS	INCREMENT	ANNUAL PERCENTAGE INCREASE
2005	74	-	-
2006	76	2	2.70
2007	78	2	2.63
2008	80	2	2.56
2009	83	3	3.75

2010	91	8	9.64

Source: DEO's office Konoin District 2010

The table shows that the number of primary school keep increasing each year. In the year 2005 there was 74 primary schools and in the year 2006 there was an increase of 2 schools which was 2.7 percent brings total number of established primary schools in Konoin to 76. The year 2007 shows a total of 78 school established indicating an increase of 2 more schools equivalent to 2.63 percent. In the year 2008 and 2009 respectively, there was an increase of 2 and 3 more schools which was 2.56 and 3.75 percent bringing total number of schools to 80 and 83 respectively. The year 2010 revealed additional 8 number of primary schools built reflecting a percentage of 9.64. In summary, there was an annual increase of 5.32 percent in the number of schools established in the last five years and this was used to make projection of primary schools in the year 2010-2015.

4.8.1 Factors leading to more establishments of primary schools in Konoin District

Although the government recognized that communities must remain responsible in provision of some infrastructure through KESSP it has continued to give additional support to schools in neediest areas so as to meet inadequate school infrastructure that were over stretched when FPE programme was introduced in the year 2003. Majority of schools in the District have priority varying from school to school that is inadequate sanitation facility, huge deficit of furniture and overcrowded classrooms among others. They provided school infrastructure, important grants in addition of

school infrastructure improvement grants to finance major upgrading or refurbishment work.

The government in doing so does not stop community initiatives and participation. The school community and stakeholders retain their responsibility for constriction and maintenance of school infrastructure or establish new structures. However many such school are haphazardly put up as they do not meet the fixed pupils- teacher ratio of 40:1 demanded by the government and are unviable as enrolment keep fluctuating as they are politically established and are also based on clan or village grouping lines meaning more schools are being build yet the existing ones are under utilized to match the shortage of teachers in the District. The government's effort is to stop the building of new schools and is encouraging communities to improve, renovate and make use of the existing facilities such as community and religious buildings (Ministry Of Education May 2003).

Table 4.14: Projection of Number of Primary Schools established in the year 2010-2015

Using the information in table 4.13 on primary schools establishment in the last five year 2005-2010, the researcher projected the number of schools in the year 2010-2015 using annual percentage increase of 5.32 in school establishment computed in table 4.13

YEAR	NUMBER OF SCHOOLS ESTABLISHED WITH ANNUAL OF INCREMENT OF 5.32%	NUMBER OF PRIMARY SCHOOLS

2010	8	91
2011	5	96
2012	5	101
2013	5	106
2014	6	112
2015	6	118

Source: DEO's office Konoin District 2010

In the base year 2010, there were a total of 91 primary schools in Konoin District with an annual percentage increase of 5.3 which would increase by 5 schools in 2011. The number of primary schools is expected to increase by 96 schools in 2011 and in the year 2012 would see an increment of 5 more schools giving a total of 101 schools establishment. The year 2013, 2014 and 2015 would have an expected increase of 5 more schools, another 6 more schools and 6 more schools respectively giving a total of 106, 112 and 118 schools in the years respectively. The prediction in 2012 is that primary schools establishment would be 118 showing 27 additional schools established than previously in the base year 2010.

4.9 Projecting staffing demand in the year 2015 based on Global PTR of 25:1

UNESCO, (2008), recommended PTR of 24.6:1 which is approximately 25:1. This is the global average ratio of pupils per teacher in public primary schools. The study set to investigate the staffing demand based on this global average.

Table 4.5 shows pupils enrolment from 2006 – 2010 and table 4.11 shows forecasted number of pupils enrolled in public primary school in the year 2010-2015. The projected enrolment in the year 2015 would be 35,585. The National Population Census of 1999 done on August 24/25th August shows the school age going population of children born between 2002 – 2009 and those born in 2002 were in class one in

2008 whereas those born in 2009 would be in class one in 2015. In essence, the total enrolment of pupils enrolled in school in the year 2015 is expected to be 35,585.

Table 4.15: Shows projected staffing demand in the year 2015 based on global average PTR of 25:1.

YEAR	PROJECTED ENROLMENT	GLOBAL PTR	PROJECTED STAFFING DEMAND
2008 to 2015	35,585	25:1	1424

Table **4.8** and **4.12** shows projected pupils enrolment of **35,585** in **2015** and using global average PTR of **25:1**, the staffing demand in Konoin District is calculated at **1424**. This implies that if the current increase and wastage among teachers is carried forward to the year **2015**, the expected staffing demand would be **907** as in table **4.7** and **4.16** shows projection of teachers demand based on PTR of **25:1** to be **1424**. This gives a shortfall of **517** teachers in Konoin District in the year **2015**.

4.10 Summary

The first research Question asked was the number of stalling demanded in primary schools in the district in the last five years based year being 2010.From the analysis, it was observed that 43.37 percent of teachers were female and 56.63 percent were male. It indicated a skewed disproportionate gender balance among teaching staff and it means there are 108 more male than female teachers. The Question also asked the academic profile of teachers qualification under various categories that is. certificate, diploma, bachelors, masters P.T.A's and the result showed that in total there were 1084 teachers out of when 814 were trained and employed by Teachers Service Commission and the remaining 270 were under PTA (trained or untrained).

The first question also inquired on distribution of primary school teachers by age groups and the researcher categorize in four age sets, A-those who were 29 years and below,B-30-39 years,C-40-49 years and D- 50 years and above. This assisted the researcher to calculate teachers wastage due to retirement in five years time base year being 2010 and also to project teachers shortage in the district to anticipate high enrolment of pupils in primary schools.

The second research question was asked to ascertain on pupils enrolment trends in primary schools in the last five years base year being 2010 and data from D.E.O statistics Konoin District of the year 2010 was used where annual enrolment rate of 1.88 percent was extrapolated into the future giving expected number of pupils in subsequent years running from 2010-2015.The find is represented in table 4:11.At the same time ,access to education was measured by use of Net Enrolment Ratio as in the table 4.8 .It was calculated that children age 6-13 years born between 2002-2009 totaling 35508 were expected to enroll in school in the last five years base year being 2010.This were expected to be in primary school in the year 2015.The National Statistics of 2009 was used and annual growth of population was calculated and extrapolated to the future .An annual increase of 1.07 percent was used.

The third research question was to established the pupil-teacher ratio in the year 2010 and ascertain the same in five years time. The number of teachers in the year 2005-2010 were 814 with an annual increment of 2.31 percent and P.T.R stood at 41:1.Using the annual percentage increment, projected number of teachers in the year 2015 would be 907 as per table 4.7.this does not concur with the government policy which advocates for a freeze on teachers employment. Birgen,(2003) and the

Government and Teacher Service Commission should fill the more demanding places for teacher in public primary schools as P.T.R still high.

The fourth research question was asking about primary school establishment trends in the last five years base year being 2010 and to make a projection of the same in the next five years. Table 4:13 shows primary school establishment in the year 2005-2010 at 91 primary schools with an annual percentage increase of 5.32 percent .This was extrapolated to future and table 4.14 on primary schools establishment in the year 2010-2015 would be 118 showing an increase of 27 additional primary schools in the year 2015.

The last research question was to find out the number of teachers shortage in the last five years and to predict additional to be deployed in primary schools in the year 2015. Table 4:15 shows projected staffing demand based on global P.T.R of 25:1 and it was established that projected pupil enrolment would be 35,585 and teaching staff would be 1424.Using P.T.R of 25:1 giving a short fall of 517 teacher in Konoin District come the year 2015

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary, conclusion, recommendation and suggestion for further research.

5.1 Summary of the finding

The study was a projection of staffing demand on pupils' enrolment in public in public primary schools in Kenya, a five year case study of Konoin District.

The summary of the findings revealed un-proportionate gender parity among primary school teachers in the District. The male teachers were more than female teachers with 56.63 percent and 43.37 percent respectively. The findings further revealed a higher percentage equivalent to 75.10 teachers are qualified trained professional with

majority having P1 teacher certificate which constitute 40.22% followed by 23.99 percent diploma holders and those with first degree being 10.89 percent. The finding on academic profile of teachers further revealed that quiet a few and negligible percent have enrolled and are continuing students in Masters Degree. The finding also sought to find the distribution of primary school teachers by age and found out that the overall number of teachers in Konoin District in primary in the year 2010 were 1084 with the highest number of teachers being in age bracket 30-39 with a relative number of few teachers and age bracket 29 years and below which where relative to those within age bracket of 50 years and above. This indicates that 9.58 percent of teachers would have retired in the year 2015 posing a serious threat to staffing in the District. Another factor that contributed to teachers wastage was death and changing of jobs among teachers yet the school management committees are of the opinion that their not ready to employ PTA teachers to address deficit of teachers to help manage overcrowding in classrooms implying that the T.S.C cannot fill the more demanding places for teachers ratio remain high at 40:1 despite the employment of interns in the year 2010.

The study further found out that total enrolment in primary school in Konoin District has increased tremendously when FPE was introduced which saw many under-age and over-age children in education system. It was projected that in the year 2015, 35,585 children are expected to enroll in primary schools in Konoin District, however wastage rate among pupils still a number of children 572 would not be able to go through school system thus raising pupils' wastage in the District. The non-schooling gap is otherwise slowly closing as the year 2004-2009 revealed a general drop in the non-schooling gap than the two previous years. The population in 2004 age-group 6-13 years who should be in school are 4536 yet those who enrolled in school that year

would 4782. The year 2013 would see a population of children age 6-13 who should be in school to be 4578 yet those who would enroll in school that year were 4571. Likewise, in the year 2014 an d2015, the population of children age 6-13 years who should be in school would be 3930 and 4483 respectively yet those who enrolled in the subsequent years were 4963 and 5056 respectively. This reveals a general drop in the non-schooling gap among primary school children in Konoin District and a number of reasons were given to have contributed to closing non-schooling gap to be as discussed in chapter 4.7.3.

The annual wastage rate in primary school in Konoin District was established at 9.2 percent for the last five years 2005-2010 and was used to make projection of the same in the year 2010-2015. The study further revealed that the PTR is still high at 41:1 as computed annual teacher increment stood at 2:31% with pupil annual increment at 1.88%. The finding also established that in the year 2010 base year the number of pupil primary schools in Konoin District was 91 percent. The annual increase in primary school establishment from the last five years 2005-2010 was calculated at 5.32 and using this annual increment, the number of primary school as projected to 118 by 2015 with addition of 27 schools than in the base year.

The study also sought to establish the staffing demand in the year 2015 and pupils enrolled in the target year. From the findings, it revealed that in the year 2015, pupils enrollment is expected to stand at 35,585 and the number of teachers demanded would be 1424 using global pupil-teacher ratio of 25:1. The study further revealed that with current trend of teachers recruitment, wastage and increase the total number of staffing in primary school would be 907 in the year 2015 meaning the District will

have a shortfall of 517 teachers employed under T.S.C. and the government has to make effort of averting this anticipated short fall.

5.2 Conclusion

Planning for teachers' resource is vital as evident in the background of the study and literature review. The staffing gap and demand for teachers' bases on pupils enrollment helps to project the level output for the target years so as to avail personal appointment for projected number of pupils. This is very important in that adequate number of teachers are critical in determining the quality of education.

The number of TSC teaching staff in primary schools in Konoin District in the base year 2010 was 814. The number of males were 416 where as the number of female teachers were 353. This show a wide gender disparity, the number of pupil enrolment in the base year stood at 4607 and number of school were 91 with 978 streams in the District. Projection made revealed that pupils' enrolment continue to increase without corresponding increase in the number of teachers employed by TSC. it was also evident that majority of teachers in profession fall in the age 30-39 when was equated to 48.40 percent and those in age 50 years and above are relative to those in 29 years and below. Primary schools establishment was noted to be increasing annually with community and government participation and partnership. However, such schools are haphazardly put up as they do not meet fixed pupils-teacher ratio of 40:1 as demanded by the Ministry of Education because they are established along political, clan/village grouping meaning more are being put up without the existing facilities being utilized. The government has come in to give additional support to school in neediest areas by refurbishing and upgrading. Lastly, projection on staffing demand in the year 2015

was calculated based on global PTR of 25:1 and revealed a shortage of 517 teachers in the District.

5.3 Recommendation

The recommendation put down are researchers' views on ways of tackling short fall of teaching staff, school establishment and high enrolment in primary school in Konoin District and Kenya as a whole so as to match ever increasing ratios of teacher- pupils in our primary schools. However they are not panacea for solving all the education problems to do with teachers' deficit in primary schools.

1). There is need to reverse the P1 course and start Diploma courses in primary TTC as more and more P1 teachers have either enrolled in diploma, degree and masters in education so as to have adequate, qualified and competent graduate teachers to man education.

2). In view of high PTRs currently experienced in primary school there is need for recruitment of additional teachers requiring urgent consideration.

3). There is need for creation of centre of accelerated learning targeting over aged youths returning to school and training of teachers to manage over aged pupil so as to manage high PTR caused by over age enrolment.

4). The government should rationalize establishment of new schools and instead upgrade and refurbish the existing ones as some schools do not meet fixed PTR of 40:1 demanded by the MOE.

5). The current teachers' recruitment exercise which has been decentralized to District levels is demand driven needs to be supported by clear guideline to protect from practicing and influence that do not improve current problems of staffing gaps

and staff balancing so as to utilize availability of teachers in primary schools in remote areas thus calling for affirmative action.

5.4 Suggestions for further research

i). A further study on factors causing children wastage in primary schools should be carried out.

ii). A similar study on project of staffing demand on enrolment should be carried out in other Districts, Provincial and at the National level.

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APPENDIX I:

1. A questionnaire for offices in charge of statistic and the TSC unit in the District

A.* Issues on current staffing in primary schools in Konoin District over the last five years *(2006-2010).

This is a questionnaire for collecting data on staffing demand in Konoin District. A five-year projection, 2010 being the base year. All information given will be treated with utmost confidentiality. Please fill in the questionnaire at your earliest convenience.

Section A General information *(tick where applicable)*

1. How long have you been in charge of the department

(a) Less than 5 years ☐

(b) 5 – 9 years ☐

(c) 10 – 14 years ☐

(d) Over 15 years ☐

2. What is your main duty in the department …….

Section B: Pertinent Information

2. **Information on staffing**

(a). How many TSC Primary School Teachers are currently teaching in the District?

No. of males ……...……

No. of females.....

Total No. of teaches……

(b). How many PTA teachers are currently teaching at primary school level in the District? ……

(c) Give the number of primary school teachers in the District in terms of their train and qualification:-

Masters degree in education _____

Bachelors' degree in education _____

Diploma in education _____

Certificate in education _____

Trained (PTA) _____

Untrained (PTA) _____

(d). How many teacher left the profession in the last five years 2006 – 2010 due to retirement death or changing jobs etc

2006 _____

2007 _____

2008 _____

2009 _____

2010 _____

e). How many primary schools teachers in the District falls in the age brackets

29 years and below_____

30 – 39 years _____

40 – 49 years _____

50 years and above _____

(e) The following are status of primary school teachers in Konoin District.

Indicate with a tick where you feel you view is appropriate in the following responses

Strongly agree (SA) – 5

Agree (A) – 4

Undecided (U) – 3

Disagree (D) – 2

Strongly disagree (SD) – 1

	QUESTION	**LEVEL OF AGREEMENT**				
		SA	A	U	D	SD
1	There is adequate number of teachers to handle the number of pupils in the District					
2	The number of teacher leaving service through natural attrition is high in the District					
3	The number of teacher leaving service is equivalent to the number being employed yield					
4	Teachers currently employed by the TSC will be enough even by the year 2015					
5	Upon completion of their degree programmes, most teachers are re-deployed to high school without replacement					
6	The introduction of FPE, it has created a need for additional teachers to cater for increase enrolment					
7	Teachers need projection is unnecessary as teacher shortage and supply can be determine by teacher re-distribution and staff balance					

B. Issues on pupils enrolment in primary schools in Konoin District over the last five years (2006-2010) and prediction of the same in five years' time (2010-2015)

2. Information on pupils Enrolment

(g). How many primary school pupils were enrolled in your District in the following years?

2006 _____

2007 _____

2008 _____

2009 _____

2010 _____

(h). Give the number of pupils drop out in the following years in your District.

2006 _____

2007 _____

2008 _____

2009 _____

2010 _____

(i) Give the number of pupils age 6 -13 years who have attained the age of school going buy still out of school in your District in the following years

2006 _____

2007 _____

2008 _____

2009 _____

2010 _____

(j) List any three mechanism the District have put in place to achieve high enrollment rate in Konoin District.

1 _____

2 _____

3 _____

C. **Issues on current pupil-teacher ratio in Primary schools in Konoin District**

and projection of the same in five years' time (2010-2015)

(k). Give the pupil-teacher ratio in Konoin District in the following years

2006 _____

2007 _____

2008 _____

2009 _____

2010 _____

(l). Give your prediction of the pupil-teacher ratio in your District in the year

2015…….

(m). List any two factors attributing to the high pupil-teacher ratio in your District

i. ……

ii. …….

D. **Issues on establishment of primary schools in the last five years (2006-2010)**

and prediction of the same in five years' time (2010-2015).

3. Information on School Establishment

(n) Give the number of primary school that were in the District in the following years:-

2006 _____

2007 _____

2008 _____

2009 _____

2010 _____

(o) Physical facilities in school have high impact on staff. Would there be any need to establish more primary school in your District?

Yes ☐ ☐ No

(p) In your opinion, explain your answers o either of the choice in question (o) above ……..

……

E. Issues of teachers shortage in Primary schools in Konoin District in the last five years (2006-2010) and prediction of the same in five years' time (2010-2015)

(q) List any four major factors that have contributed to teacher shortage in your District in the last five years (2006-2010).

i. _____

ii. _____

iii. _____

iv. _____

v. _____

(r) What mechanisms have you put in place as a District to curb shortages of teaching staff.

i. ……..…….

ii. ……..…….

iii. ……..……

iv. …….

(s) The following Likert Scale is used by the researcher to rate and rank the extend to which he or she is in agreement with the observed phenomenon, he or she will indicate with a tick his or her feelings if appropriate with the observation made in the following responses.

Strongly Agree (SA)-5, Agree (A)–4, Undecided (U)-3, Disagree (D)-2, Strongly Disagree (SD) -2

To what extent are you satisfied as a District with the government employing intern teachers?

		SA	A	U	D	SD
1	Number of teachers provided by the government through TSC is not adequate.					
2	PTA teachers are still in need in primary schools to avert shortages of teachers					
3	With the high current rate of wastage among teachers, the number of interns is on average higher than the number of teacher that leave the profession.					
4	Teachers in the District are equitably distributed among all schools in the District					
5	The major factors causing teacher shortage is as a result of those leaving the profession due to poor career choice					

APPENDIX II

Interview schedule for the DEO's Officer in charge of statistic and TSC unit

This interview schedule is for collecting data on pupils enrolment in Konoin District

Questions

1 (a) What was the existing number of primary staffing in your District in the years 2006 -2010?

(b) Give the number of primary school teachers that were expected to be teaching your District over the last 5 five 2006 – 2010.

2. (a) why is there a big shortage of teachers in primary school in the District?

(b) In your opinion how do these problems be solved?

3. (a) give the number of school going age 6 - 13 years who were enrolled in your District over the last five years 2006 – 2010.

4. Even with the introduction of FPE, still some school age going children age 6 –13 are out of school

(a) What are some of the factors that hinders such children from enrolling in school?

(b) Do you think will be done to solve these problem so as to enhance high enrollment in future?

APPENDIX III

Document analysis guide for the officers in charge of population statistic in the District - Central Bureau of Statistic (CBS).

DOCUMENT	REQUIRED INFORMATION
District population	- Number of school age going children 6 – 13 years born

census of 24/25 August 2009	2002 – 2009 - No. of school age going pupils born 2002 -2009 expected to be in school by 2015 - No. of births in the following years 2002- 2009 - No. of deaths for those born in the years 2002 – 2009 - No in terms of sex of children born between 2002 – 2009
Vital statistic - registration of vital events	- No. of births in the following years 2002- 2009 - No. of deaths for those born in the years 2002 – 2009 - No in terms of sex of children born between 2002 – 2009

APPENDIX IV: CALCULATIONS

1. Percentage increase in Enrolment 2006-2010

The year 2006 $\frac{-392}{3731} \times 100 = -10.5\%$

The year 2007 $\frac{123}{3854} \times 100 = 3.19\%$

The year 2008 $\frac{633}{} \times 100 = 14.11\%$

4487

The year 2009 17 x 100 = 0.38%

4504

The year 2010 103 x 100 = 2.24%

4607

Annual percentage increase in enrolment:-

= -10.5 + 3.19 + 14.11+ 0.38 + 2.24 = 9.42 = 1.88

5

2. Projecting primary school enrolment to he year 2015

The year 2011 1.88 x 4607 = 87 Increment

100

87 + 4694less 403wastage = 4291

The year 2012 1.88 x 4694 = 88 Increment

100

88 + 4694 = 4782 less

Wastage of 440 = 4342

The year 2013 1.88 X 4871= 90 Increment

100

90 + 4782=4871less

Wastage of 480 = 4391

The year 2014 1.88 X 4871= 92 Increment

100

92 + 4871 = 4963 less

Wastage of 524 = 4439

The year 2015 $\frac{1.88}{100}$ X 4963 = 93 Increment

93 + 4963 = 5056 less

Wastage of 572= 4484

3. Grade Wastage Rates (GWR) among pupils in primary school in subsequent years 2006 - 2010

i. Grade Wastage Rate (GWR)

This is a dual problem of repeating and dropping from an educational system

$$GWR = \frac{N_t^k - N_{t+1}^{k+1}}{N_t^k}$$

That is GWR is obtained by dividing the number of pupils which failed to be promoted to a subsequent grade by the original enrolment in the previous grade

2006 – 2007

$$GWR = \frac{3731 - 331 \times 100}{3731}$$

$$= \frac{480}{3731} \times 100 = 11.26\%$$

2007-2008

$$G.W.R = \frac{3854 - 3518 \times 100}{3854}$$

$$= \frac{336}{} \times 100 = 8.72\%$$

3854

2008 – 2009

G.W.R = 4487 – 4071 x 100

4487

416 X 100 = 9.27%

4487

2009 – 2010

G.W.R = 4504 – 4166 x 100

4504

= 338 x100 = 7.50%

4504

Expected wastage rate 2011- 2015

2010 – 2011

GWR = 4607 – 4238 x 100

4607

369 x 100 = 8.0%

4607

2011- 2012

GWR = 4694 – 4291 x100

4694

= 403 x 100 = 8.58%

4694

2012- 2013

G.R.W = 4782- 4382 x 100

4782

= 400 x 100 = 8.36%

4782

2013 – 2014

G.W.R = 4871 – 4391 x 100

4871

= 480 x 100 = 9.85%

4811

2014 – 2015

G.W.R = 4963 – 4439 x 100

4963

= 524 x 100 = 10.56%

4963

2015- 2016 = 5056 – 4484 x 100

5056

572 x 100 = 11.31%

5056

4. Non-schooling gap

This is the difference between estimated population on appropriate age-group and the number enrolled in the education level corresponding to that group

1. Real Non- schooling gap there is the population of those in school minus those in primary and within 6-13 yrs divided by total population of those within 6-13yrs that is

$$R.N.S.G = \frac{P(6 -^{+}13) - NPr\ (6 -^{+}13)}{P(6-^{+}13)}$$

The year 2008 R.N.S.G.

$$\frac{4246 - 4071 \times 100}{4246} = 4.12\%$$

The year 2009

$$R.N.S.G = \frac{4519 - 4166 \times 100}{4519}$$

$$= \frac{353 \times 100}{4519} = 7.81\%$$

The year 2010

$$R.N.S.G = \frac{4570 - 4238}{4570} \times 100$$

$$= \frac{332 \times 100}{4570} = 7.26\%$$

Projection to the year 2011- 2015

The year 2011

$$R.N.S.G = \frac{4706 - 4387}{4706} \times 100$$

$$= \frac{319 \times 100}{4706} = 6.77\%$$

The year 2012

$$R.N.S.G = \frac{4536 - 4540}{4536} \times 100$$

$$= \frac{-4 \times 100}{4530} = +0.09\%$$

The year 2013

$$\text{R.N.S.G} = \frac{4518 - 4698}{4578} \times 100$$

$$= \frac{+180}{4578} \times 100 = +3.98\%$$

The year 2014

$$\text{R.N.S.G} = \frac{3930 - 4860}{3930} \times 100$$

$$= \frac{930}{3930} \times 100 = -23.66\%$$

The year 2015

$$\text{R.N.S.G} = \frac{4483 - 5026}{4483} \times 100$$

$$= \frac{+543}{4483} \times 100 = +12.11\%$$

NB// the positive sign shown in the non-schooling gap percentage is an indicator that non-schooling gap closing to zero and is a positive indication of a diminishing non-schooling gap in future and that education would a achieve 100% plus enrolment for

those enrolled in school taking into account estimated population of appropriate age-group born in a given year.

5. Protecting staffing demand in primary school in 2015

The number of teacher in the base year 2010 was

Year 2011

i. Teacher increment

$$\frac{814 \times 231}{100} = 18$$

ii. Total number of teachers after increment

814 + 18 = 18

Teacher wastage

$$\frac{832 \times 0.68}{100} = 6$$

iii. Total enrolled teacher

814 + 18 – 6 = 826

Year 2012

i. Teacher increment

$$\frac{832 \times 231}{100} = 20$$

Total number of teachers after increment

832 + 20 = 852

833 Teacher wastage

$$\frac{852 \times 0.68}{100} = 6$$

834 Total expected teachers

832 + 20- 6 = 846

Year 2013

i. Teacher increment

$$\frac{852 \times 2.31}{100} = 20$$

ii. Total number of teachers after increment

852 + 20 = 872

iii. Teacher wastage

$$\frac{872 \times 0.68}{100} = 6$$

iv. Total expected teacher

852 + 20 – 6= 866

Year 2014

i. Teacher increment

$$\frac{872 \times 2.31}{100} = 21$$

ii. Total number of teacher after increment

872 + 21 = 893

iii. Teacher wastage

$$\frac{893 \times 0.68}{100} = 6$$

iv. Total expected teacher 872 + 21 - = 887

Year 2015

i. Teacher increment

$$\frac{893 \times 2.31}{100} = 21$$

ii. Total number of teacher after increment

893 + 21 = 914

iii. Teacher wastage

$$\frac{914 \times 0.68}{100} = 7$$

iv. Total expected teacher

893 + 21 – 7= 907

6. Projecting the staffing demand in 2015 based on PTR 25:1

The formulae applied

$$T^t_s = \frac{E_s^t}{P_s^t}$$

T^t_s = Enrolment at a particular time (t) for a particular school (s)

Teacher pupil ratio at a particular time (t) for a particular school (s)

$$T = \frac{35585 \times 1}{25} = 1424$$

Shortfall of teacher demand in the District. 1424 – 907 = **517 teachers**

APPENDIX V RESEARCH PERMIT

Appendix V

Research permit

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THIS IS TO CERTIFY THAT:

Prof./Dr./Mr./Mrs./Miss ERIC SIGEI KIPNGENO

of (Address) MOI UNIVERSITY P.O. BOX 3900, ELDORET

has been permitted to conduct research in .....Location,

KONOIN .....District,

RIFT VALLEY .....Province,

on the topic A FIVE YEAR PROJECTION OF STAFFING DEMAND ON ENROLMENT IN 2015 IN PUBLIC PRIMARY SCHOOLS.

for a period ending 30TH NOVEMBER 20 11

PAGE 1

Research Permit No. NCST/RRI/12/1/SS-011/47

Date of Issue 09/04/2011

Fee received SHS 1,000

Applicant's Signature

Secretary, National Council for Science and Technology

APPENDIX VI: RESEARCH AUTHORIZATION LETTER

REPUBLIC OF KENYA

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Telegrams: "SCIENCETECH", Nairobi
Telephone: 254-020-241349, 2213102
254-020-310571, 2213123.
Fax: 254-020-2213215, 318245, 318249
When replying please quote

P.O. Box 30623-00100
NAIROBI-KENYA
Website: www.ncst.go.ke

Our Ref: NCST/RRI/12/1/SS-011/237/4

Date: 8th March 2011

Eric Kipngeno Sigei
Moi University
P. O. Box 3900
ELDORET

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*A five year projection of staffing demand on enrolment in 2015 in public primary schools: A case study of Konoin District*" I am pleased to inform you that you have been authorized to undertake research **in Konoin District** for a period ending *30th November 2011.*

You are advised to report to **the District Commissioner and the District Education Officer, Konoin District** before embarking on the research project.

On completion of the research, you are expected to submit **one hard copies and one soft copy** of the research report/thesis to our office.

P. N. NYAKUNDI
FOR: SECRETARY/CEO

Copy to:

The District Commissioner
Konoin District

The District Education Officer
Konoin District

APPENDIX VII

DETAILED GOOGLE MAP OF KONOIN DISTRICT

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Appendix VIII: Detailed Google Map of KONOIN District