ASSESSSING THE IMPACT OF PENSION SCHEME CONVERSION FROM DEFINED BENEFIT TO DEFINED CONTRIBUTION

A Survey at the Kenya National Examinations Council

Johnson Wambua Mutheke

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DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted for a degree in any other university.

Signature   Date

Johnson Wambua Mutheke   **Reg. No. I46/68532/2011**

This project has been submitted for examination with the approval as the University Supervisor.

Signature   Date

Prof. Patrick G. O. Weke

Actuarial Science and Financial Mathematics Division

School of Mathematics, University of Nairobi.

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ABBREVIATIONS

CAP	Chapter
DCS	Defined Contributions Scheme
DBS	Defined Benefits Scheme
GoK	Government of Kenya
ILO	International Labour Organization
KNEC	Kenya National Examinations Council
KNEC SRBS	KNEC Staff Retirement Benefits Scheme
NSSF	National Social Security Fund
RBA	Retirement Benefits Authority
UN	United Nations

ABSTRACT

The KNEC pension scheme is under management by a private administrator. Like all such administrators, Liberty Pensions ltd is under bidding of the sponsor to adopt the new pension plan for and on behalf of KNEC. It is known that private pensions are not generally actuarially neutral. To the contrary, an important function of pension plans is to structure benefits so as to induce employees to exit the organization at a time consistent with the employer's preferences. The organization is posited to have a target retirement date when the value of compensation paid to the employee equals the value of the employee's productivity in the organization.

On the other hand, the employees are posited to select their desired retirement dates by maximizing remaining lifetime utility, as a function of consumption and retirement leisure, subject to time and money constraints. The time constraint recognizes the finiteness of the employee's expected remaining lifetime. The money constraint however, is determined by labour market earnings for as long as employment continues and by pensions and social security after retirement.

This study therefore shall assess the income-effect impact on the employees due to the revised contribution scheme. At the same time, the study will find out if there was another option for KNEC employees to choose another pension plan without being seen to contradict the government position.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The Kenya National Examinations Council is a Not-For-Profit Government Corporation. It is mandated through an Act of Parliament (CAP. 225A of 1980, Revised 2012) to conduct school and post-school national examinations, except university examinations. It awards certificates to successful candidates, besides undertaking other examinations related functions. The KNEC has a permanent workforce of 504 employees who are under mandatory registration as members of the organization's pension scheme, the KNEC Staff Retirement Benefits Scheme (KNEC SRBS Report, 2012).

This scheme was inaugurated in 1989 as a Defined Benefit Scheme and remained so until the year 2010. The Government directed all its Departments, State Corporations, Semi-Autonomous Government Agencies and Parastals to covert their pension schemes to Defined Contribution Schemes in that year (GoK, 2010). Thus, the KNEC, being a State Corporation, had all pensionable staff automatically absorbed into the new scheme.

The term pension is used interchangeably with such other terms like retirement benefits, retirement package, among others (GoK, 1997). Broadly, a pension is a contract for a fixed sum to be paid regularly to a person, typically following exit from service at a predetermined age. A pension created by an employer for the benefit of an employee is commonly referred to as an occupational or employer pension. Occupational pensions are a form of deferred compensation, usually advantageous to employee and employer for tax reasons. Many pension schemes

invariably carry an insurance component, because often, they will pay benefits to nominated survivors or disabled beneficiaries of the pensioner, (available on http://www.wikipedia.com. Retrieved on 12th April 2013).

In this study, the term pension will be used to denote the arrangement for the payment of some financial benefits to an employee upon exit from the organization at a predetermined date, the retirement age (Cole, 2009). The specific area of study will focus on the defined benefit and the defined contribution schemes as applicable to the KNEC SRBS.

Overview of Pensions Sector in Kenya

The pensions sector in Kenya had an undefined form until 1963 (GoK, 2000). A Kenyan concrete plan for pension scheme administration took effect in 1963 with the establishment of the National Social Security Fund. Into this fund, employers were mandated to contribute a percentage of the worker's pay on monthly basis. The fund was run as a defined benefit scheme.

Besides the NSSF, Kenya has had other pensions fund schemes, namely the Civil Servants Pensions Scheme otherwise referred to as the Wife Children Pension Scheme; the Occupational Retirement Scheme; and the Individual Retirement Scheme. The four schemes combined serve a mere 2 million workers out of an approximate workforce of 7 million Kenyans (Kakwani, et al, 2006). More recently, the government has show more concerted effort in improving the lifestyle of retirees as shown in Kenya Vision 2030 Document (GoK, 2005) and elsewhere (UN 2008, July).

Background of Pension Schemes

Historical Background

The history of pension schemes is rightly attributed to western civilization (Trousdale, 2005). Widows' funds were among the first type of pension arrangement to appear in Europe. For example Duke Ernest the Pious of Gotha in Germany, founded a widows' fund for clergy in 1645 and another for teachers in 1662. Various schemes of provision for ministers' widows were then established throughout Europe at about the start of the eighteenth century, some based on a single premium while others were based on yearly premiums to be distributed as benefits in the same year. The earliest pension fund plan is traced to superannuation schemes in Germany in 1889 set up as part of Otto von Bismarck's social legislation, the Old Age and Disability Insurance Bill (available from http://www.wikipedia.com. Langley, 2006). In 1875 the American Express Company established the first private pension plan in the United States. Prior to the 1870s private-sector plans did not exist, primarily because most companies were small family-run enterprises. Public pensions got their start with various 'promises', informal and legislated, made to veterans of the Revolutionary War and, more extensively, the Civil War. They were expanded greatly, and began to be offered by a number of state and local governments. This trend gained momentum during the so called "*early progressive era*" in the late nineteenth century (available on http://www.ebri.org. Retrieved on 12th April 2013).

There is a history of pensions in Ireland that can be traced back to Brehon Law. The law imposed a legal responsibility on the kin group to take care of its members who were aged, blind, deaf, sick or insane. In the UK, the beginning of the modern state pension was the Old Age Pensions Act 1908, that provided UK (£0.25) a week for those over 70 whose annual means did not

exceed £31.50. It coincided with the Royal Commission on the Poor Laws and Relief of Distress (1905-09) then deemed as the first step in the Liberal welfare reforms to the realization of a system of social security. It was to become the unemployment and health insurance through the Irish "National Insurance Act" 1911 (available on http://www.wikipedia.com. Retrieved on 12th April 2013).

Modern Pension Schemes in Global Scene

A growing challenge for many nations is population ageing. As birth rates drop and life expectancy increases an ever-larger portion of the population is elderly. This leaves fewer workers for each retired person. In almost all developed countries, this means that government and public sector pensions could collapse their economies unless pension systems are reformed or taxes are increased. One method of reforming the pension system is to increase the retirement age. Two exceptions are Australia and Canada, where the pension system is forecast to be solvent for the foreseeable future. In Canada, for instance, the annual payments were increased by some 70% in 1998 to achieve this. These two nations also have an advantage from their relative openness to immigration. However, their populations are not growing as fast as the U.S., which supplements a high immigration rate with one of the highest birth rates among Western countries. Thus, the population in the U.S. is not ageing to the extent as those in Europe, Australia, or Canada.

Another growing challenge is the recent trend of states and businesses in the United States purposely under-funding their pension schemes in order to push the costs onto the federal government. For example, in 2009, the majority of states have unfunded pension liabilities

exceeding all reported state debt. Bradley Belt, former executive director of the PBGC (the Pension Benefit Guaranty Corporation, the federal agency that insures private-sector defined-benefit pension plans in the event of bankruptcy), testified before a Congressional hearing in October 2004, "I am particularly concerned with the temptation, and indeed, growing tendency, to use the pension insurance fund as a means to obtain an interest-free and risk-free loan to enable companies to restructure. Unfortunately, the current calculation appears to suggest that shifting pension liabilities onto other premium payers or potential taxpayers is the "path of least resistance rather than a last resort."

Challenges have further been increased by the credit crunch of post-2007. Total funding of the nation's 100 largest corporate pension plans fell by $303bn in 2008, going from a $86bn surplus at the end of 2007 to a $217bn deficit at the end of 2008.

India is a developing economy that has made impressive strides in the sector of pension schemes. The Employees' Provident Fund Organisation (EPFO) is a statutory body of the Government of India under the Ministry of Labour and Employment. It administers a compulsory contributory Provident Fund Scheme, Pension Scheme and an Insurance Scheme. It is one of the largest social security organisations in the India in terms of the number of covered beneficiaries and the volume of financial transactions undertaken. The EPFO's apex decision-making body is the Central Board of Trustee (CBT). The Employees' Provident Funds and Miscellaneous Provisions Act, 1952 came into effect on 4th March 1952. The organisation is administered by a Central Board of Trustees, composed of representatives of the Government of India, provincial governments, employers and employees. The Union Labour Minister of India chairs the board.

The Chief Executive of the EPFO, the Central Provident Fund Commissioner, reports to the Union Labour Minister through the Permanent Secretary in the ministry.

The Constitution of India under "Directive Principles of State Policy" provides that the State shall within the limits of its economic capacity make effective provision for securing the right to work, to education and to public assistance in cases of unemployment, old age, sickness & disablement and undeserved want. The EPF & MP Act, 1952 was enacted by the Parliament of India and came into force with effect from 4th March 1952 as part of a series of legislative interventions made in this direction (available on http://www.wikipedia.org. Retrieved on 20th June 2013).

The term retirement plan is referred to as superannuation plan in Australia and New Zealand. Superannuation in Australia refers to the arrangements, which people make in Australia to have funds available for them in retirement. In Australia, the government supports and encourages superannuation arrangements, and minimum provisions are compulsory for employees. From 1st January 2014, employers are required to pay default contributions to an authorized "MySuper" product.

The graph in figure 1 shows a typical pensions scheme growth in Australia, a developed economy country. This is the total superannuation industry liabilities for members funds and reserves (A$ millions) since 1988 (available on http://www.wikipedia.org. Retrieved on 20th June 2013).

Fig.1. Annual total superannuation industry asset growth 1996-2005 in Australia.

In Malaysia, the pension scheme is called Employees' Provident Fund (EPF). The Malay KWSP

is the Malaysian government agency, equivalent to the NSSF in Kenya, under the Ministry of

Finance. It is mandated to manage the compulsory savings plan and retirement planning for

legally employed workers in Malaysia. The EPF has powers to invest members' funds for

income generation as evinced by the purchase on 30th June 2012, of the London's Battersea

Power Station site according to Bloomberg in "2012 Members General Information". (Available on

Official EPF website. Retrieved 14 June 2013).

1.2 Statement of the Problem

The KNEC SRBS has been in existence since 1989 as a defined benefit plan. As such, the employer was

under the terms defined in the Trust Deed supposed to contribute 28% of the employee's basic pay to the

plan. The employee on the other hand was obligated to contribute 2% of his/her basic pay towards this

pension plan (KNEC SRBS Trust Deed, 1999).

However, this arrangement was altered by the government decision to have KNEC scheme, among other government agencies and corporations changed to DCS from July 2011. When this new pension plan was adopted, the contributions made to the pension scheme changed to 20% for the employer and 10% of the employee's basic pay respectively. This study shall establish if the change from DBS to DCS had any impact on the employees. It will also establish if KNEC staff stands to gain better retirement benefits under DCS.

1.3 Overall Objective of the Study

The overall objective of this study was to assess whether KNEC staff have suffered any financial distress as a result of the change from DBS to DCS.

Specific Objectives

The objectives of this study were to:

i)   To establish if the pension scheme conversion had any income-effect impact on the pensionable employees of KNEC;

ii) To establish whether the defined contribution scheme offered a better financial retirement position to the KNEC retirees as opposed to the defined benefit scheme;

iii) To determine the extent the scheme conversion has affected the employer and employee contributions.

iv) To make recommendations based on the study outcome with respect to the best option for KNEC retirement benefits scheme administration.

1.4 Research Questions

i) To what extent did the pension scheme conversion affect the income of the pensionable employees of KNEC?

ii) To what extent did the scheme conversion affect the employer and employee contributions?

iii) Did the defined contribution scheme afford a better financial retirement position to the KNEC retirees as opposed to the defined benefit scheme?

iv) In terms of the projected benefits, is there a significant difference between the benefits accruing from DCS compared to those realizable from DBS for a retiree?

1.5 Justification of the Study

The Kenya National Examinations Council is a fast-growing organization in terms of staff numbers (KNEC Bulletin, Sep. 2012). The composition of the staff is such that the professional cadre in some key departments such as Research, Test Development and ICT form the majority. In order to retain such professionals, one principal incentive that the employer could use is a financially promising retirement benefits plan. The outcome in this study could therefore be a pointer to KNEC on whether DCS as the current pension plan holds out this prospect to the professional cadre.

1.6 Assumptions

In this project, it was assumed that:

1   The respondents to the instrument of information capture were free of any inhibitions to self disclosure;

2   The respondents had understood the working mechanisms of the DCS even though no option to another pension plan was available;

3   There were no extraneous variables that would otherwise influence the outcome of the project findings.

4   The respondents would be unbiased in their responses from the point of view of the researcher being their colleague at work.

1.7 Limitations of the Study

This study was exclusively conducted on the KNEC pensionable staff. As such the sample population may not be representative enough to generalize the results to other government corporations that had their pension schemes converted to DC. Again, the KNEC operations and staff are scattered in six locations within the city. This arrangement is due to lack of central premises for the organization. The movement of staff between these operating stations is high. This may have affected effective gathering of information from the staff whole will formed the sample population in his study.

Costs were incurred in travelling and other activities to KNEC stations on data collection and analysis. In consideration of financial constraints, the researcher used only one method of data collection, namely, questionnaires. A sample population of KNEC employees was used and thus reduced the number of questionnaires sent out to respondents.

The major constraints to authentic responses were due to personal biases, inhibitions on self-disclosure, or lack of basic understanding of pension schemes in completing the questionnaires by respondents. To mitigate some of these constraints, the respondents were reached each in person. To minimize respondent bias, the questionnaires were hand delivered to the respondents personally rather than sending through third parties. As far as possible it was explained to the respondents the purpose for the study in order to dispel any fears they may have in their responses.

For some reasons, some respondents may have moved to work in other stations or failed to return the questionnaires. To mitigate such occurrences the researcher gave one week for completing the document. For those questionnaires not returned, the researcher ignored that input.

1.8 Definition of Terms

Annuity

This is a financial product sold by financial institutions that is designed to accept and grow funds from an individual and then, upon maturity, pay out a stream of payments to the individual at a later point in time. Annuities are primarily used as a means of securing a steady cash flow for an individual during their retirement years (available on http:www.investopedia.com. Retrieved 17th June 2013).

Gratuity

In Business and Commerce, a gratuity is a gift or reward, usually of money, for services rendered or tip. It also means something given without claim or obligation. In the military, a gratuity also

means a financial award granted for long or meritorious service (available from http://www.the freedictionary.com. Retrieved on 17th June 2013).

Pension

Pension means a regular payment made by the State to a person who is old, disabled or widowed or by a former employer to an employee after long service and retirement (Hornsby, 2012).

Pension scheme

A pension scheme is a way of saving for ones retirement so that one has an income after exiting from employment. Pensions saving may be done by getting one through the employer or joining a personal pension scheme. One can save for a pension using both types of pension scheme at the same time if one so chooses (available on http://www.hmrc.gov.uk. Retrieved 17th June 2013).

Retirement benefit plan

The term retirement plan refers to a pension granted upon retirement of the individual. Employers, insurance companies, the government or other institutions such as employer associations or trade unions may set up retirement plans. Retirement pensions are typically in the form of a guaranteed life annuity, thus insuring against the risk of longevity (Armstrong, 2011).

Superannuation

 This is a monthly payment made to someone who is retired from work. It is a regular payment to a person that is intended to allow them to subsist without working ((available from http://www.the freedictionary.com. Retrieved on 17th June 2013).

Trust

A trust is a relationship whereby property, real or personal, tangible or intangible, is held by one party for the benefit of another (beneficiaries). A trust conventionally arises when property is transferred by one party to be held by another party for the benefit of a third party (the trustee). It is however, also possible for a legal person (individual, company or partnership) to create a trust of property without transferring it to anyone else, simply by declaring that the property will henceforth be held for the benefit of the beneficiary (Moles & Terry, 1999).

1.9 Summary

The objective of this chapter was to highlight the environment of the pension scheme for KNEC employees. It has examined the history of the pension schemes in a global perspective, but more specifically the Kenyan scenario. It has also outlined the research problem including the problem statement, purpose, objectives and the research questions. In addition, the importance of assumptions made, the scope and the limitations were discussed. In addition, less familiar terms used in the study were defined. Chapter 2 will review the related literature in seeking to understand the mechanisms of pension's administration and management. Chapter 3 will describe the research methodology for this study. This includes the research design, population, sampling design, types and sources of data, quality control, ethical issues, data collection and design and data analysis. The analysis of data collected is presented in chapter 4 while chapter 5 is the summary of the study outcome, conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The process of Literature review in research involves reading into the field of study in order to gauge where the researcher's ideas fit (Wisker, 2008). The researcher would be interested in what can inform her/his ideas and what others think and have discovered. The focus is to define where and in which ways her/his area of questioning, research and findings could contribute to existing knowledge as well as extending meaning and understanding in the area under research (Mugenda & Mugenda, 2008).

This chapter examines the work done on pensions in Kenya and beyond by the various interest groups, among them the government, researchers and others. The chapter also looks at the theoretical framework that will form the basis of this report.

The pensions system in Kenya is anchored in the Retirement Benefits Act (RBA) of 1997. Prior to the Act, pensions were under the control of the various institutions and organizations that managed their employees' retirement benefits (Kimuyu, 1999). The National Social and Security Fund catered for the private sector; universities and some corporations had superannuation schemes such as the defunct East African Examinations Council Superannuation scheme while still other organizations operated individual or occupational retirement schemes (Mwangi, 2012).

2.2 Types of Pension Schemes

Pension schemes may be divided according to the scheme plan or the sponsorship. There are four main categories, namely Defined Benefits plan, Defined Contributions Plan, a Hybrid of the two and provident fund plans. On the other hand, sponsorship or ownership may be used to define a pension scheme. In this case, there are schemes operated by private sector organisations where the National Social Security Fund falls. Then there is the Government sponsored Public Service Pension Scheme, wholly catering for the Civil Service. There are also schemes set up by employers for the benefit of their employees only known as Occupational Schemes. The last category in this group is the Individual Pension Plan, set up by institutional providers to cater for members who are neither tied to an employer nor other form of formal employment (RBA, 2000). A brief overview of each category follows.

The Defined Benefits Plan

This is designed to guarantee an individual a specified amount of benefit after retirement. These benefits undergo actuarial valuations based on a formula. The defined benefit depends on certain factors such as years of service and member's earnings. Members in this type of plan are advised on a specific amount that they are to contribute to the scheme. The main types of pension schemes that operate under defined benefits are occupational retirement schemes and civil service pension schemes.

Defined Contributions Plan

This is where a member's contribution together with any funds from her/his employer is deducted and remitted to a registered pension scheme for investment. The amount that the member receives at retirement is dependant on the total amount of money contributed and the

investment performance over the period of time. Individual pension schemes and occupational schemes can be found under this category.

Hybrid plan

Hybrid plan combines the features of DCS and DBS plan designs. One form of hybrid plan is the cash balance plan which is basically a defined benefit plan made by the employer, with the help of consulting actuaries who make it appear as if it is a defined contributions plan. In general, they are usually treated as defined benefit plans for tax, accounting and regulatory purposes. As with defined benefit plans, investment risk in hybrid designs is largely borne by the plan sponsor. As with defined contribution designs, plan benefits are expressed in the terms of a notional account balance, and are usually paid as cash balances upon termination of employment. These features make them more portable than traditional defined benefit plans and perhaps more attractive to a more highly mobile workforce (available on http://www.wikipedia.com.Retrieved 26th June 2013).

Provident plan

This is a fund that pays retirement benefits as a lump sum on exit. Under this scheme, a stipulated sum is deducted from the salary of the employee as her contribution towards the fund. The accumulated contribution along with the interest (which is calculated as a percentage of one's salary) is paid to the employee at the time of retirement. The main difference between a provident fund and a pension plan is the payment of the funds' benefits. Upon retirement, a provident fund's benefit is available in full to the member. In contrast, a member of a pension

fund is restricted to a lump sum proportion with the remaining benefit commuted on a regular

basis.

2.3 Pension Schemes in Kenya

The current pension system in Kenya may be categorized into four groups, namely the National Social

and Security Fund; the Public Service Pension Scheme; the Occupational Scheme; and the Individual

Personal Plan. The structure of the pension system is shown in table 2.1.

Table 2.1. *Current pension scheme structure in Kenya*

No.	Type of Scheme	NSSF	PSPS	Occupational Plan	Individual Plan
1.	Legal Structure	Act of Parliament	Act of Parliament	Established under Trust	Established under Trust
2.	Membership	Employees in formal sector establishments with 5 or more employees excluding civil servants	All public service employees, including civil servants, teachers, disciplined forces but excluding the armed forces who have a separate scheme	Formal sector workers in companies that operate retirement schemes	Open to all on voluntary basis.
3.	Funding	Funded	Non-funded	Funded	Funded
4.	Regulation	RBA	Act of Parliament	RBA	RBA

Source: http://www.rba.org.ke

National Social Security Fund

An Act of Parliament established this fund in 1965 as a provident fund on defined benefit

scheme basis (RBA, 1997). In 1997, the Act was amended to re-define NSSF as a retirement

benefits scheme, making it effectively subject to regulation by the Retirement Benefits

Authority. It covers all employees in the formal sector except for public service (Kimuyu, 1999).

All employers are required by law to register with NSSF but only those with five or more

employees are required to contribute. The NSSF is the largest pension fund in Kenya, with

cumulated membership of 3.4 million, although only 2 million are actively contributing

(Kakwani et al. 2006). Over 5 million Kenya workers are not secured under any pension scheme.

The statutory contribution is 10% of an employee's pay, shared equally between employer and

employee. Among the disadvantages of the scheme, include:

  (i)   That NSSF only provides lump sum benefits and there is no provision for

         annuatization. Lump sum benefits tend to be poorly applied or squandered hence

         providing inadequate protection against poverty to retirees (Armstrong, 2008);

  (ii)   The range of benefits provided under the scheme is limited. There is no pooling or

         sharing of risks and no minimum of safety net of benefits to cushion contributors;

  (iii) NSSF continues to pay a paltry outgo, less than 40% of capitalization standing,

         reflecting a combination of a decrease in early withdrawals and the impact on

         benefit outgo of the lower allocation of interest to members' individual accounts.

However, the NSSF scheme has some advantages compared to other schemes.

  (iv)   The adoption of ICT in its functions, a feat achievable only by the rich schemes,

         has afforded better accountability;

(v)   The NSSF has a wide regional coverage, 35 regional offices that make it the largest retirement benefits scheme in Kenya.

The Public Servants Pension Scheme

This scheme caters for public service employees and uniformed forces except the armed forces. It has a cumulative membership of over 400,000 civil servants, teachers, the police and prisons service. Armed forces and other military personnel have their own pension arrangements.

Among the disadvantages of the scheme, include:

(i)   Lack of portability of benefits or provisions for retaining deferred benefits. This restricts job mobility among civil servants, a cause for the apathy in service delivery;

(ii)   The pensions Act does not contain any explicit provision for the constitution, operation and management of the scheme;

(iii)   There are no explicit provisions for disclosure or governance structures in the scheme, exposing it to funds misdirection.

However, under the current constitution (2010), it is provided that any modifications to the PSPS must not be less favourable to existing members than the existing arrangements. This would serve as a check against funds misappropriation.

Occupational Schemes

These are retirement plans set up by employers to cater for the benefit of their staff. They are voluntary and operate under a trust (Sharma, 2003). There are just over 1700 occupational

schemes in Kenya (RBA Act, SG. No. 2). The composition is roughly 10% DBS and 90% DCS.

The total contributing membership is about 300,000. The members are also registered with the

NSSF as a government regulation for retirement security reasons. Occupational schemes

however command a capitalization base of more than Ksh 180 billion compared to NSSF's Ksh

6 billion though with far less membership (KNBS, 2012).

Individual Personal Pension Plans

These plans are set up by institutions with a view to tap members who are not necessarily tied to

an employer or formal occupation (King & Kenneth, 1996). They are however open to any

member even those from formal sector. In Kenya there are 17 registered individual pension

schemes, although the number is increasing annually, and the current membership stands at over

10,000. The capital base of these schemes stands at Ksh 2 billion.

2.4 Theoretical Framework

A theoretical framework is a system of concepts and relationships formulated to ascertain or test

a particular theory or framework (Mugenda & Mugenda, 2008). The researcher attempts to show

how the investigation at hand is related to the theoretical background. It is possible for a

researcher to set out to test a particular relationship in a theory or on the other hand s/he may

only want to concentrate on a few selected concepts derived from a given theory. The key issue

is that whatever the approach, the theory must be well described as well as how the particular

study fits into that theory (Reichel & Ramey, 1987).

The theoretical framework for this study is to be based on the maximization of returns through

prudent choice of pension fund plan. The benefits that may accrue to a fund depend on the

country where the employer is based, supervisory level of the government through taxation and availability of government funded pension scheme (Neill, 1977). These factors will however be assumed constant in the model to be adopted for this study.

Financial management as basis of a sound long-term financial perspective is central to the viability of a pension scheme. Periodical actuarial review and the actuarial assessment of the pension reforms are means of providing such perspectives for managers and planners of pension schemes. Actuarial reviews require long-term demographics and financial projections. In complex financial systems such as pension schemes such projections can only be done by models (Mathuva, 1996). Such models assist in providing quantitative basis for making policy decisions on social security pension schemes. Among other advantages, a pension's projection model will offer the pension scheme managers the following:

i) Capacity to project future benefits expenditure and contributions base through year-by-year simulations;

ii) Capacity to determine the future contribution rates by members under alternative financing methods such as DBS and DCS;

iii) Opportunity to simulate the development of the reserves of the scheme; and

iv) Ability to assess the financial impact of modifications to the pension scheme, such as proposed reforms, scheme contribution plan and/or portfolio mix.

To determine a scheme performance in the long-term contributions scenario, a mathematical model of the form given in chapter three under research design or the other models described there may be used. Using two base years' results, 2011 and 2012, the data of which are given in

appendix B, the mathematical model approach will be applied to test efficiency of the KNEC-SRBS funding.

2.5 Summary

Chapter Two was devoted to discussion of the pension schemes operations and development. The types of schemes in operation globally and in Kenya specifically were discussed. In the Kenyan scenario, the various schemes in use were examined in ration to their scope and portability mechanisms. The theoretical framework upon which this study is based examined the survival and viability of a pension scheme given the possibility of plan mix. Pension scheme managers and planners can make a choice of running a DBS, a DCS or a combination of the two with a view to maximizing contributors' wealth. However, any choice has consequences depending on the organization matrix, political interventions or economic down turns.

Chapter Three, shall discuss the methodology for this study. This would include the research design, population and the sampling design. The other components of this study to be examined include: types and sources of data; quality control; ethical issues; data collection and data analysis.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Research may be defined as the scientific and systematic search for some desired information aimed at discovering knowledge on a specific topic (Mugenda, 2008). Research methodology is then the process of "systematically solving the research problem" (Kothari, 2004, pp.8). Research methodology therefore involves considering the logic behind the methods the researcher would use in the context of the research study so that the results may be capable of being analyzed and evaluated. In research methodology, the researcher would explain the reasons for using a particular method or technique and not others (Kothari, 2004). In this chapter, the following elements of research methodology will be discussed: an overview of the research design for this project; the population and rationale of choosing the sample size; sampling designs and the sampling technique used in the project; data types and data collection tools; quality control in the study; ethical issues and the methods to be used in analyzing the data to be collected.

3.2 Research Design

The plan that the researcher presents to show how s/he intends to solve the problem under investigation is known as the research design. It is an "arrangement of conditions for collecting and analyzing data in a manner that aims to combine relevance to the research purpose with cost and time considerations in the procedure" (Kothari, 2004, pp. 31). It is the blueprint to be used to execute the objectives of the study and answering the research questions. Research design may

be complicated by the availability of a large variety of methods, techniques, procedures, protocols and sampling plans (Cooper & Schindler, 2006). The more complicated the approach taken the more expensive the process could become. To illustrate this point, the following models of pension schemes' viability may be applied to pensions fund analysis:

Mathematical Model for Pension Scheme Financing

Let:

F_t =   reserve at end of year t;
I_t =   annual total income in year t including interest income;
P_t =   contribution income in year t excluding interest income;
R_t =   annual interest income in year t;
S_t =   annual expenditure in year t;
G_t =   total insurable earnings in year t;
p_t =   contribution rate in year t;
i_t =   interest rate in year t.

Then, the calculation of various quantities of accounting identities is given by:

$$I_t = P_t + R_t \tag{1}$$
$$R_t = [\sqrt{(1-i_t)}+1] [(P_t - S_t) + i_t F_{t-1}] \tag{2}$$
$$F_t = F_t - F_{t-1} = I_t - S_t \tag{3}$$
$$P_t = p_t - G_t \tag{4}$$

These equations enable the calculation of scheme fund operational costs through year-by-year simulations. From these equations, we deduce the following relationships:

$$F_t = (1 + i) F_{t-1} + [\sqrt{(1 + i_t)}] [pG_t - S_t] \tag{5}$$

$$\Longrightarrow v_t F_t = F_{t-1} + \lambda_t^{1/2} (pG_t - S_t) \tag{6}$$

where $\lambda_t = (1 + i_t)^{-1}$

Equation (6) gives a recursive formula with respect to F_t. It describes the evolution of the scheme fund in each year. The solution is given by:

$$V_tF_t \quad = \quad V_{n-1} F_{n-1} + p[\hat{G}_t - \hat{G}_{n-1}] - [\hat{S}_t - \hat{S}_{n-1}]$$

where $\hat{G}_t = \sum_{k=1}^{t} G_kW_k;$ $\hat{S}_t = \sum_{k=1}^{t} S_kW_k$

and $V_t = \prod_{k=1}^{t}\lambda_k;$ $W_k = V_{t-1}.\lambda_t^{1/}$

This mathematical model is sufficient for the prediction of pension scheme financial projections such as the KNEC SRBS.

Other Models for Dealing with Financial Pension Schemes Analysis.

Systems Approach Model Pension funds may be treated as open systems as their mode of operation is systemic. Basically, the funds are collected and accumulated from sponsor and employees' contributions. The contributions are then invested and the proceeds held in stewardship by appointed custodian for the benefit of the members upon retirement, (Davis, 2005). More recent development in pensions proceeds utilization allows members to borrow from the fund to invest in housing mortgages (RBA SG2; 2007). Davis thus posits that pension funds have a definite input that they convert into a definite output, a systems approach model (input-conversion-output).The efficiency and projected performance of the pension fund may therefore be predicted as the funds ability to maximize financial outputs (present fund value) from scarce financial resources (contributions and investment). In support of this model, Chansarn (2005) asserts that a financially efficient pensions system ensures distribution of limited funds to most beneficiaries through application of the most effective manner.

The OECD Model is the measure of efficiency of a pensions fund. OECD defines efficiency as the controlling of spending, accomplishing more with less financial resources, commissioning long run investments to save resources in the end and utilizing budgets prudently.

Thus, essentially, a pensions fund should be able to maximize its financial outputs, operate at minimal costs, pay retirees benefits promptly and effectively optimize gains for the members.

In analysing statistical data, the procedure adopted depends on the research design (Mugenda & Mugenda, 2003). Seven key research designs, namely: experimental; descriptive; correlation; case study; explanatory; cross-cultural research and survey research have been identified (Kombo and Tromp, 2006). These research designs will be briefly explained.

Experiments are studies that involve an intervention by a researcher beyond that required by measurement through manipulation of some variable in a certain situation. The researcher is then able to observe how such a variable affects the subjects under study (Cooper & Schindler, 2006). In experimental design, cause and effect are determinable. The subjects under study are assigned randomly to an experimental group, which is given the required treatment, or a control group, which is not subjected to the treatment (Kombo & Tromp, 2006).

This research design is limited in scope due to the artificiality of the laboratory situation besides the researcher being influenced by extraneous variables. Such extraneous variables "affect the outcome of a research study either because the researcher is not aware of their existence, or s/he has no control over them" (Mugenda & Mugenda, 2003, pp. 60). A researcher is bound to control or eliminate extraneous variables in a study so that the results show a dependent variable that is wholly influenced only by the independent variable.

In correlation design, the researcher is able to assess the degree of relationship that exists between two or more variables through a correlation analysis. It is posited that if a statistical relationship exists between two variables, then it is possible to predict the value or characteristics

of one variable from information available on the other (Mugenda, 2008). Correlation, as a degree of association between two or more variables is used to explore relationships between such variables and to predict the score for a subject on one variable when given the score on another variable (Mugenda & Mugenda, 2003).

For a case study design, the researcher has an opportunity to make in-depth analysis of a unit in a cluster of related elements in context and total perspective (Kombo & Tromp, 2006). The emphasis is on detail in a case study because it provides valuable insight for problem solving, evaluation and strategy setting. Such details in the study are obtained from multiple sources of information. The advantage of a case study approach is that it can provide a new challenge to a theory or be a source of new hypotheses and constructs (Cooper & Schindler, 2006). However, case studies have a limitation in that it is not quite easy to determine the actual degree to which the selected case is representative of the population (Kombo & Tromp, 2006).

An explanatory design attempts to explain an event, situation, act or characteristic of a scenario, which is being researched, on (Nyandemo, 2007). The researcher using the explanatory approach manipulates the independent variable so as to derive its effect on the dependent variable. Manipulation of the independent variable and other conditions leads to "control of extraneous variables in the research study" (Mugenda, 2008, pp.282). Explanatory research design uses two main techniques, namely the laboratory experiment and the field experiment. Laboratory explanatory designs are suitable for physical and biological studies because the researcher can better control and manipulate the variables. For the social sciences, explanatory field experimentation is used because it is easily adaptable to social reality (Nyandemo, 2007).

Cross-cultural research design is a comparative technique used when the researcher wants to compare the behaviour patterns of any two different cultures, ethnographic subjects or other socio-economic phenomena (Kombo & Tromp, 2006). Social scientists use this technique to overcome the challenge in the impossibility of selecting, for instance, two identical groups before they can apply treatment to one of them (Nyademo, 2007).

A survey is "an attempt to collect data from members of a population in order to determine the current status of that population with respect to one or more variables" (Mugenda & Mugenda, 2003, pp.164). It is concerned with a descriptive research study where the researcher is interested in describing, recording, analyzing and interpreting conditions or relationships that exist, opinions held, processes that are on-going or trends that are developing about given phenomena (Kothari, 2004).

A descriptive survey answers questions such as who, where, how much, how many, what or when. In general, a survey is designed to collect information that describes, explores and helps the researcher to understand some aspect of social life. The researcher focuses on the links among a smaller number of attributes across a sample of cases determined by considerations of available resources and the size of the target population (Mugenda, 2008). In a survey, information is collected through a highly structured interactive media such as an interview instrument or questionnaire (Cooper & Schindler, 2006).

Descriptive Design. In descriptive design, the researcher is supposed to give a description of the state of affairs about a phenomenon, as it is (Kombo & Tromp, 2006). In addition, descriptive design in research has been defined as the process of collecting data in order to test hypotheses (Gay, 1981). The questions concerning the current status of the subjects being studied would be

answered. The core of a descriptive design is the generating of hypotheses and employs the statistical principles of measures of dispersion and central tendency, to bring forth the interrelationships between variables under study (Mugenda, 2008)

This project adopted the descriptive survey approach. The basis for this approach was derived from the fact that where research questions are raised that require gathering information by means of questionnaires then the researcher should adopt a design of descriptive survey approach (Kombo & Tromp, 2006). The researcher will therefore gather data from pensionable employees of KNEC and use the descriptive survey approach.

3.3 Population

A population is a well-defined group or set of human beings or other entities under study (van Dalen & Deobold, 1979). In addition, a population is described as the total collection of the elements about which the researcher wishes to make inferences (Cooper & Schindler, 2006). The population therefore forms the aggregate of all that which conforms to a certain specification and upon which the researcher would like to generalize the results (Mugenda & Mugenda, 2003). The population in the investigation under study will be the 504 pensionable employees of KNEC.

Target Population

The target population is derived from the aggregate of elements forming the population (Mugenda & Mugenda, 2003). The target population is also defined as the composition of "all individuals, objects or things that the researcher can reasonably generalize his/her findings to" (Mugenda, 2008, pp. 181). It may however, not be practically possible sometimes to access the

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target population. Sampling becomes necessary because it offers several advantages in a research

over collection of data for the entire population or the target population. The researcher

purposively selected a sample of employees at KNEC to constitute a study population from the

target population. The key findings in the research project were analyzed using statistical

application tool, the SPSS. The data was then presented in the form of tables.

<center>*Major recommendations*</center>

From the analysis of the data, the researcher was able to proffer some recommendations. These

are to be found in chapter 5. An informed choice of a pension scheme plan may be an incentive

to enhance employee loyalty to the organization besides creating good hope for leaving

employees.

<center>*Target population for this study*</center>

The researcher conducted the research project through administration of questionnaires. The

target population was the permanent and pensionable staff of the KNEC. The population

distribution of the pensionable staff in KNEC was as given in table 2.

Table 3.1: *Distribution of Pensionable Staff at KNEC by Departments*

Department	No. Of Personnel
Test Development	66
Examinations Administration	193
Printing and Manuscript	47
Research	45
General Administration and Human Resource Management	66
ICT	31
Planning/Corporate Affairs/CEO's Office	56
Total	504

Source: *KNEC HRM Division. Database June 2011*

3.4 Sample Size

Researchers normally settle for a representative sample from the target population. The

representative sample drawn from the target population is referred to as the accessible population

and comprises the elements of the population that are available to the researcher (Christensen,

2001). Sampling is less time-consuming and less costly. In addition, sampling may be the only

practical method of data collection, especially in destructive experiment studies. Sampling is also

a practical way to collect data especially where the population is infinitely large so as to render a

study of all of its elements impossible (Nyademo, 2007).

The accessible population comprised the sampled members of staff of the various departments in

KNEC. A generalization of outcomes in the results from these Departments was based on the

fact that the nature and mode of selection or choice of pension scheme plan for all the staff was

based on similar criteria. Each one only fitted in DCS or DBS plan to guarantee population

validity (Mugenda, 2008).

The sample size is the number of elements to be selected from the target population (Kothari,

2004). The sample size in this study comprised the KNEC staff members selected from each

department, that is, 30% out of each Department. The 30% representative sample was considered

large enough to represent the staff population of 504 staff retirement benefits membership. In

Mugenda and Mugenda (2003), a population that is fairly homogeneous in its composition or

activities may be represented by a relatively small sample that would yield fairly representative

results for the target population. On this basis, the KNEC staff in the researcher's view was

considered homogeneous for purposes of investigating their response to a common event such as

the DBS conversion. Besides, Kothari (2004) explains that for a fairly homogeneous population,

the sample size may be relatively small and the operational sample size percentages chosen may be regarded as satisfactory percentages of the target population.

3.5 Sampling Techniques

Sampling is the procedure that a researcher adopts in gathering people, items or other elements for study (Orodho, 2003). Sampling entails selecting a number of elements from the population such that the selected group contains elements representative of the desired characteristics in the target population. The researcher should formulate a procedure of selecting the subjects to be included in the sample (Kothari, 2004). Sampling design techniques fall under two main types, namely non-probability and probability sampling. A description of the two design techniques follows.

Non-probability Sampling.

The non-probability sampling may be described as the sampling procedure "which does not afford any basis for estimating the probability that each item in the population has of being included in the sample" (Kothari, 2004, pp. 59). The technique is often used when the interest of the study is to establish how a small group or a representative group is doing for purposes of illustration or explanation (Kombo & Tromp, 2006). Non-probability sampling is used when the researcher is not interested in the selection of a sample for the purpose of making inferences or generalizations from the information gathered (Mugenda & Mugenda, 2003). The two authors have identified a number of non-probability sampling techniques, that is: purposive; judgement; maximum variation; homogeneous; snowball; quota and convenient sampling.

Purposive Sampling Design. A non-probability sample that conforms to certain criteria is called purposive sampling (Cooper & Schindler, 2006). In this technique, the items for the sample are selected deliberately by the investigator and her/his choice concerning the items remains paramount. Thus, as observed by Mugenda (2008), in non-probability sampling, the researcher purposively picks the particular units of the population for constituting a sample on the basis that the sample so selected possesses the required characteristics and will be prototype or representative of the entire target population. The cases of subjects are hand picked because they are informative or they possess the required characteristics. The method is used when the investigator wants to locate the units of observation that have the required characteristics (Mugenda, 2008). Such units may be clustered in a particular setting or geographical area. The researcher could select a cluster from such a location or area, and then randomly sample a number of cases or subjects for her/his study. The use of clusters however, does not imply multistage sampling. The multi-stage sampling is a higher-level cluster sampling approach. It involves a "primary selection of large sample units, such as states, then districts, then towns" and finally certain categories of elements within the towns (Kothari, 2004. pp16).

Judgement Sampling. In this method, the researcher selects the elements of the sample frame to suit some specific criterion. A sample may be picked by this technique out of a criterion of past predictive record (Cooper & Schindler, 2006). Besides, when one wishes to select a biased group for screening purposes, such as introduction of a new product in the market, judgement sampling is appropriate. Kothari (2004) has described judgement sampling as frequently used in qualitative research where the objective mainly is to develop hypotheses rather than to generalize the results to the wider population.

Maximum Variation Sampling Design. This is a method of sampling where the aim is to get a sample with wide variety of cases (Mugenda & Mugenda, 2003). In such a case, the central themes that characterize participant variations are brought forth. For instance, subject variations such as age, gender, religion, marital status and level of education in a study where the central theme is child labour may be brought out (Kombo & Tromp, 2006).

Homogeneous Sampling Design. Homogeneous sampling involves the selection of a sample from cases with similar characteristics in order to carry out an in-depth study of the group (Mugenda & Mugenda, 2003). Since the cases being studied are similar, the researcher would select a small sample and thus conduct a more intensive investigation.

Snowball Sampling Design. This is a chain sampling process that begins with the researcher asking a few subjects about an issue and further adding more contacts as provided by the first lot of subjects (Kombo & Tromp, 2006). Mugenda and Mugenda (2003) describe the snowball sampling as a method where the desired characteristics are identified using purposeful sampling technique. The few identified "subjects name others that they know to have the required characteristics until the researcher gets the number of cases s/he requires" (Mugenda & Mugenda, 2003. pp 51).

Quota Sampling Design. This technique starts by dividing the population into relevant strata that could be gender, education level, income or marital status (Kombo & Tromp, 2006). The criteria of selection are based on subjects that fit the quotas identified. The selection of actual subjects is not random as in stratified sampling. The subjects are purposively picked as they fit into identified categories or groups, which are the desired quotas (Mugenda, 2008).

Convenient Sampling. The method is also called accidental sampling because the researcher picks cases or units of observation as they become available to her/him (Mugenda & Mugenda, 2003). The researcher using convenient sampling method uses people who s/he meets haphazardly or accidentally. For instance, the researcher may use people who just happen to be walking by, or show special interest in the topic under research at that particular moment (Kombo & Tromp, 2006).

<center>*Probability Sampling Designs*</center>

Probability sampling, also called random sampling is based on random selection methods where every item in the population has an equal chance of inclusion in the sample (Kothari, 2004). The results obtained from this technique have certainty in terms of probability. One can measure the errors of estimation or the significance of the results in the final analysis. As such, results from random sampling technique obey the law of statistical regularity, which states that if on average the sample chosen is a random one, then it will have the same composition and characteristics as the population (Kothari, 2004). Key probability sampling techniques include simple random sampling, systematic sampling, stratified sampling and cluster sampling (Mugenda and Mugenda, 2003).

Simple Random Sampling. This is an unrestricted probability selection method where each element in the population has an equal chance of being picked (Kothari, 2004). The technique has the advantage that it provides the researcher with a sample of elements that represent those of the target population (Christensen, 2001). Selecting a random sample may be done with the help of customized computer software. Besides, tables of random numbers such as drawn by the Rand Corporation may be used to pick the elements for the study. Simple random

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sampling has some inherent shortcomings that make it less popular in research studies (Kothari, 2004). Among the most common shortcomings are: firstly, the method requires a population list or sample frame that is often not readily available or is practically impossible to get. Secondly, it fails to use all the information about a population, leading to a design that may be wasteful of resources. Thirdly, the method may be a bit costly to the researcher. Researchers (Mugenda, 2008) have developed more effective and efficient techniques of sample design that mitigate these shortcomings.

Systematic Sampling. This technique employs the method of natural ordering of the elements in the population (Chandran, 2004). If the number of elements in the target population is N then the researcher divides N into equal ranges of n elements each. Every m^{th} element in the range is sampled, starting with a random element picked from within each range of n elements. The first unit is thus picked randomly and the remaining units of the sample are selected at fixed intervals, which is the skip interval maintained for the selection of all the other elements.

Systematic sampling is both simple and flexible in its application, hence its popularity among researchers (Mugenda & Mugenda, 2003). The procedure in systematic sampling involves firstly, identifying, listing and numbering the elements; then the skip interval is determined, followed by determination of the point of random start. Lastly, a sample is drawn by choosing every nth element in the population. Some of the shortcomings found when systematic sampling is used include the error of periodicity in the population. Periodicity refers to the recurrence of an element at regular intervals so that if it happens to be chosen as the starting element it will definitely yield false results because of similarity of occurrence in the series of elements sampled. Secondly, a false result may occur in a study due to monotonic trend in the population

elements. This occurs when the population list varies from the smallest element to the largest and vice versa. A researcher using this technique of sampling needs to exercise constant vigilance for such behaviour in the population.

Stratified Sampling. Sometimes a population from which a sample is required may consist of non-homogeneous group. Stratified sampling is employed in such populations in order to get a representative sample (Kothari, 2004). The process entails dividing the population into several categories or groups that are individually more homogeneous than the mother population (Nyademo, 2007). The sub-populations are called strata, and from each stratum, a set of elements is selected to constitute a sample. The results from the study are then weighted in accordance with the proportion of the strata to the population, and then combined into appropriate population estimate for the final analysis.

The process involves first identifying some basis for stratification. A good stratification base will normally maximize the difference among the strata means and minimize the within-strata variances for the most significant variable. It is also noted that the more strata used, the closer one comes to maximizing intra-strata differences, which is the difference between strata, and the closer one gets in minimizing intra-stratum variance, which is the difference within a given stratum (Cooper & Schindler, 2006).

Cluster Sampling. In this technique, the sample unit contains groups of elements or clusters instead of individual members or items in the population (van Dalen, 1979). The process involves dividing the population under study into a number of smaller non-overlapping populations. Then, a number of these smaller populations, the clusters, is randomly selected with the final sample comprising all or samples of units in these small populations or clusters.

The sampling design to be used in this investigation will be non-probability sampling, namely

purposive method. The researcher will purposively sample, out of the seven departments, 30

percent of the staff to be subjected to the questionnaires. The proportionate sample size for each

Department selected from the accessible population is given in table 3.

Table 3.2: *KNEC Staff Retirement Benefits Scheme Membership Sample Distribution*

Department	Number of Staff	Sample size	Sample proportion %
Test Development	66	20	30.0
Examinations Administration	193	58	30.0
ICT	31	10	30.0
Printing & Manuscript	47	15	30.0
General Administration & HRM	66	20	30.0
Planning/Corporate Affairs/CEO Office	56	17	30.0
Total	504	140	27.8

Source: *Complied by the researcher, June 2013*

3.6 Types of Data

Data may be defined as the information that is gathered by an investigator to facilitate the

analysis and conclusion for the study (Mugenda & Mugenda, 2003). The major types of data are

the primary data and secondary. Primary data is information collected from respondents (Babbie,

2008). This may be obtained through questionnaires, interviews or other research tools. The

process of collecting primary data creates new data from these primary centres. On the other

hand, secondary data involves sourcing information from data that has been previously gathered

by someone else (Kombo & Tromp, 2006). It includes documents such as can be extracted from published information records, electronic storage media (desk research) and the print media such as encyclopaedias, textbooks, handbooks, magazines, journals and newspaper articles. Other authors add data classification according to format of presentation, namely numerical form (quantitative) or words and phrases form (qualitative) (Mugenda & Mugenda, 2003).

The researcher used both primary and secondary sources of data. Primary data was gathered from the KNEC staff by engagement of respondents through questionnaires. Secondary data however, came from mainly relevant works on pensions and pension scheme plans information as available in print media and the electronic storage media.

3.7 Data Collection Tools

Data collection tools are the instruments that the researcher uses to gather the specific information aimed at proving or refuting some facts (Kombo & Tromp, 2006). There are a number of data collection tools, which include questionnaires, interview schedules, observation and focus group discussions (Kothari, 2004). The criteria for selecting one or more tools for use by the researcher depend on factors like the attributes of the subjects, research topic, and problem and question at hand (Ngechu, 2006). A description of key tools for data collection follows.

Questionnaires

Questionnaires gather data over a large sample. In order to ascertain effectiveness of the questionnaire, it is necessary to pre-test it (Cooper & Schindler, 2006). Some of the features that make questionnaires a popular research tool include: information can be gathered from a large

sample and diverse spheres; confidentiality is maintained; time and costs can be saved and respondent bias is minimized because there is no interviewer/respondent contact during the completing of the document. However, limitations on this method have been cited (Kombo & Tromp, 2006). These include: the response rate can be very low; difficult to follow up on incomplete responses and lack of opportunity to ask for further information or clarification on unclear responses.

Interview schedules

An interview schedule is a direct communication approach between the researcher and the respondent. It involves interviewing the people and recording their responses for analysis (Cooper & Schindler, 2006). Interviews may be of one of three forms namely the unstructured, semi-structured and the structured interview (Kombo & Tromp, 2006).

In unstructured interview, the researcher uses some form of topic list as a reminder when asking questions. The interview is informal and conversational in character. The semi-structured interview is based on the use of an interview guide (Kombo & Tromp, 2006).The format is a list of questions or topics that are to be addressed during the interview. In this form of interview, a researcher may use focused interviews that intensively investigate a particular topic or adopt a case study interview format where s/he collects comprehensive systematic and in-depth data on a specific case. The third format, the structured interview is designed to subject each respondent in a sample to the same stimuli (Ngechu, 2006).

Kombo & Tromp, (2006) have cited the advantages of structured interviews as including reliability of the information gathered, in-depth coverage of topics, timesaving and the collection

of quantifiable data. However, there are limitations of rigidity of the researcher on the laid down questions. Besides, there could be over-cautiousness on the part of the respondent in answering the questions and the possibility of missing points not captured in the formulated questions.

Focus group discussions (FGD)

A focus group is a special forum of research participants, usually comprising 8 to 10 persons who interact as directed by a moderator with a view to generate data on a particular issue or topic (Cooper & Schindler, 2006). Predetermined criteria are used in selecting focus group members according to Kombo & Tromp, (2006). Such criteria include that topics for discussion are decided in advance; also, a predetermined list of open-ended questions is prepared besides focus centres on discussion by participants about the chosen topics.

Observation

Observation is deemed a research tool when it is conducted specifically to answer a research question, is systematically planned and executed, uses proper controls and provides reliable and valid account of what happened (Cooper & Schindler, 2006). In Kombo & Tromp, (2006) observation techniques include participant, unstructured and structured observation. The participant method is where the researcher is an active functioning member of the issue under study. The setting is such that the researcher acts as both an observer and participant.

The unstructured method involves the researcher taking the position of an onlooker. Data is gathered in the form of descriptive accounts. The researcher would then be in a natural or field setting endeavouring to adapt to the culture. The structured method also has the researcher as an

onlooker. However, s/he focuses on a small number of specific behaviour patterns. Only those patterns appearing on a pre-defined observation list are recorded.

Observation method has such advantages as the securing of information about people or activities that cannot be derived from experiments or surveys, avoiding participant filtering and forgetting. The limitations associated with observation method include the constraint of long periods of waiting to capture the relevant phenomena; high equipment and observer costs;

3.8 Pre-testing of the Questionnaire

Pre-testing is the process of trying out a research tool on a small sample of a population similar to the larger population (Kombo & Tromp, 2006). Questionnaire pre-testing is done in order to detect weaknesses and presumptions in the design and instrumentation of the data collection tool (Ngechu, 2006). For purposes of this project the questionnaire was not subjected to a pre-test because the subjects are homogeneous.

3.9 Quality Control

The essence of any quantitative research is to produce evidence to establish a hypothesis or to answer a research question (Chandran, 2004). There is need therefore for the investigator to incorporate elements of quality in the information gathered, analyzed and presented in the final report. Two key quality control parameters, namely reliability and validity will be highlighted to show how the researcher intends to ascertain quality in this study.

Reliability

Reliability is a characteristic of measurement concerned with accuracy, precision and

consistency. Some degree of inconsistency is present in all measurement procedures (Thorndike

et al., 1991). The responses obtained from the sampled group may be affected to some extent by

inconsistencies. In order to maintain a sustained degree of reliability the researcher will develop

a questionnaire with more objective type questions than the open-ended type of question.

<center>*Validity*</center>

This is a characteristic of a measurement concerned with the extent that a test measures that

which the researcher actually intends to measure (Cooper & Schindler, 2006). As such, the

differences found with a measurement instrument reflect true differences among the participants

in the sample frame. The researcher in this study intends to apply three forms of validity

measures, namely content-related validity, criterion-related validity and construct-related

validity.

Content-related Validity. Content validity is a rational and judgmental analysis of the

content of the questionnaire. It may be described as the extent to which a measuring instrument

provides adequate coverage of the investigative questions guiding the study (Cooper &

Schindler, 2006). In this project, content validity was ensured through closely building the items

in the questionnaire around the specific objectives.

Criterion-related Validity. This is an indicator of the success of measures used for

prediction or estimation. Criterion-related validity is manifest in a measuring instrument if the

latter contains a predictor of some specific future outcome (Thorndike, et al, 1991). Criterion-

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related-validity was ascertained by creating items that were relevant, free of bias, reliable and information availability.

Construct-related Validity. Construct-related-validity refers to something that the researcher is unable to observe but instead s/he literally constructs an abstract conceptual frame to summarize or account for the regularities or relationships in observed behaviour or pattern (Thorndike, et al., 1991). In order to achieve a measure of construct-related-validity, the questionnaire had in-built items that brought out the character and personality traits of the respondent.

3.10 Data Analysis Procedure

Data represents the raw facts that are collected by the researcher from the study environment (Cooper & Schindler 2006). In addition, such data are a collection of observations on one or more variables of interest (Toh & Hu, 1998). Once the data from the field is gathered, they will be organized so as to be analyzed. The researcher used quantitative and qualitative methods in the analysis of the data.

Quantitative Analysis

In this approach, the researcher attempts to quantify some social phenomena by collecting, analyzing and interpreting numerical data (Mugenda, 2008). The core concept in quantitative research is to test a hypothesis but not always. A research study that yields quantifiable data is according to Mugenda and Mugenda (2003) a quantitative study. The researcher therefore used the computer, Ms-Excel and the statistical package for social sciences to analyze the quantitative data.

Qualitative Analysis

The qualitative analysis approach includes designs, techniques and measures that do not yield discrete numerical data (Mugenda & Mugenda, 2003). Data for qualitative research is often gathered through direct observation or participant observation with the observer being a regular and full time participant in the scenario. Another qualitative analysis approach uses the interview technique. In this study, interviews were not used as part of the data collection instruments.

3.11 Summary

Research methodology deals with the systematic way of solving the research problem (Kothari, 2004). It is in research methodology that the researcher expounds the various steps that s/he would generally apply in her/his study in an acceptable scientific method (Mugenda & Mugenda, 2003). Following the research methodology, the next phase is collection of data. The data gathered was analysed quantitatively. The quantitative approach used the statistical tools of measures of central tendency and measures of dispersion. The findings and the analysis of the results was dealt with in chapter four.

CHAPTER FOUR

ANALYSIS AND INTERPRETATION OF DATA

4.1 Introduction

This chapter deals with the analysis of the data gathered in the sample population. It is presented with interpretations deduced from the analysis. The study was done to assess the impact of pension scheme conversion from defined benefit to defined contribution in the staff retirement scheme of the Kenya National Examinations Council.

In presenting the findings, the sequence in the research questions was followed. Section 4.2 of this chapter therefore discusses the extent to which the pension scheme conversion affected the income of the pensionable employees of KNEC. Section 4.3 analyses whether the defined contribution scheme afforded a better financial retirement position to the KNEC retirees as opposed to the defined benefit scheme. The extent to which the scheme conversion affected the employer and employee contributions is discussed in Section 4.4. The last Section 4.5 discusses in terms of the projected benefits, if there was a significant difference between the benefits accruing from DCS compared to those realizable from DBS for a retiree.

4.2 Effect of Scheme Conversion on Employees

In analysing the extent to which pension scheme conversion from DBS to DCS affected the pensionable employees, the researcher captured their ages to depict the kind of population being studied.

Table 4.1 *Sample population age distribution*

Age bracket	Frequency	Percent
25-29	9	6.2
30-34	14	9.7
35-39	27	18.6
40-44	43	29.7
45-49	26	17.9
50-54	13	9.0
55-59	13	9.0
Total	145	100.0

It is normal for persons near to retirement age to be more concerned about retirement package than those with more years of working life like below forties. The age distribution of the sample population is shown in table 4.1

Table 4.2. *Sample Gender Distribution*

Gender	Frequency	Percent
Female	50	34.5
Male	95	65.5
Total	145	100.0

The gender representation is also given in table 4.2. From the table, it is apparent that the male respondents performed better than the females either by way of returning the questionnaires or by participation in the study.

Table 4.3. *Duration that one has been a member of the KNEC SRBS*

Duration that you have been a member of the KNEC SRBS	Frequency	Percent
1-3 years	13	9.0
3-5years	19	13.1
5-7years	46	31.7
More than 7 years	67	46.2
Total	145	100.0

Table 4.3 was captured to show the significance of appreciation of KNEC SRBS by respondents by virtue of ones longevity of service. The data show that the sample comprised 77.9% of respondents with over 5 years of service at KNEC.

Table 4.4. *Effect of change in deductions of contribution from a member's salary the due to scheme conversion*

As far as deduction of contributions from my salary is concerned , the effect due to scheme conversion was	Frequency	Percent
Low	9	6.2
Medium	65	44.8
High	59	40.7
Very high	3	2.1
Missing	9	6.2
Total	145	100.0

Table 4.4 shows that the effect of increased deductions upon scheme change lay between medium and high assessment in the opinion of the respondents. Only 6.2% felt it was low while 2.1% thought it was very high. In essence the respondents said the deductions had a significant impact on their pay.

Table 4.5. *Sampled Population Job grades: EC Scale*

Job grade: EC	Frequency	Percent
2	3	2.1
3	2	1.4
4	10	6.9
5	11	7.6
6	21	14.5
7	29	20.0
8	28	19.3
9	24	16.6
10	11	7.6
11	4	2.8
missing	2	1.4
Total	145	100.0

To add credence to the result in table 4.4, the data in table 4.5 was included. In KNEC, the lower salary cadre lie below EC6, the middle are in EC6 to EC 8 while EC 9 and above are senior officers. From the data, the increased deductions therefore affected over 80% of staff in middle and senior level cadre. This was so notwithstanding the fact that some 22% of the respondents had other sources of income apart from salary as shown in table 4.6.

Table 4.6. *Sample population other source of income apart from salary*

Do you have another source of income apart from the salary	Frequency	Percent
No	123	84.8
Yes	22	15.2
Total	145	100.0

4.3 Contributions Impact

Employer versus employee contributions impact was measured by checking the preference of choice by employees for rate of contribution. The results were as depicted in table 4.7.

Table 4.7. *Sample population preferred rate of contribution for pension purposes by employer*

What would you have preferred as reasonable rate of contribution for pension purposes by your employer	Frequency	Percent
28%	43	29.7
25%	82	56.6
20%	19	13.1
Missing	1	.7
Total	145	100.0

But also according to the respondents, the scheme finances had not registered a significant growth since adoption in July 2011 to date. This is reflected in table 4.8

Table 4.8 *Whether, since the scheme conversion in 2011 there has been a significant growth in the scheme's capital base*

Since the scheme conversion in 2011 has there been a significant growth in the schemes capital base	Frequency	Percent
Yes	31	21.4
No	105	72.4
I do not know	9	6.2
Total	145	100.0

This outcome may have influenced the choice for DBS by 46.9% of respondents compared to 27.2% who felt DCS was the better choice for pension plan as shown in table 4.9. Conversely, the following mathematical model as explained in Chapter three on research design was applied

to check for SRBS growth. Thus, applying this Mathematical Model for Pension Scheme Financing and using SRBS financial report for 2011/2012 we have,

Let:

F_t =   reserve at end of year 2012, REQUIRED
I_t =   annual total income in year 2011 including interest income, = ksh.952757096
P_t =   contribution income in year 2011 excluding interest income = ksh.105317080;
R_t =   annual interest income in year 2011 = ksh.45941023
S_t =   annual expenditure in year 2011 = ksh.83498315
G_t =   total insurable earnings in year 2011= ksh.950938510
p_t =   contribution rate in year 2011 = ksh.208962.50
i_t =   interest rate in year 2011 = 10%

Then, the following calculations of various quantities of accounting identities become:

I_t = P_t + R_t
      =   105317080 + 45941023
      =   **151258103**
R_t = $[\sqrt{(1-i)} +1] [(P_t - S_t) + i_t F_{t-1}]$
$45941023 = [\sqrt{(1-0.1)} +1][(105317080-83498315) + 0.1 F_{t-1}]$
$F_{t-1} = 17576606$

F_t = $I_t - S_t$
      =   151258103 – 83498315
      =   67759788

Reserve at end of year 2012 should be **ksh.67759788**.

The net return on investments for the year 2012 is recorded as **ksh.26153844**. This shows the fund is operating well below par.

Table 4.9. *Sample population preference for pension scheme category.*

Given that DCS grows through investments of scheme funds while DBS grows through employer/ employee contributions and longevity of service , which scheme would suit you best	Frequency	Percent
DCS	40	27.2
DBS	69	46.9
None	36	24.5
Missing	1	0.68
Total	147	100.0

Now, the RBA guidelines allow a sponsor to contribute a maximum of 30% of employee's salary

to the pension scheme. However, it is left to the discretion of the sponsor how to spread the 30%

factor between the employer and employee contribution. It was perhaps for that reason the

respondents to felt that 8% increase for their part and an equal reduction on the employer's

previous contribution was not fairly matched as shown in table 4.10.

Table 4.10. *Sample population assessment of the 8% change on contributions*

The 8% increase and decrease on contributions by employee and employer respectively was fair	Frequency	Percent
Yes	68	46.9
No	76	52.4
Missing	1	.7
Total	145	100.0

4.4 Comparison of DCS to DBS Returns

To understand whether DCS afforded members a better financial retirement position compared to

the DBS plan, the researcher conducted the survey in tables 4.11, 4.12, and figure 2.

Table 4.11 *Sample population opinion on difference in benefits*

I do not foresee a significant difference in benefits accruing from DCS compared to DBS	Frequency	Percent
Yes	42	29.0
No	57	39.3
I do not know	46	31.7
Total	145	100.0

While 39.3% of the respondents felt that, there was a difference between DCS and DBS, 31.7%

did not know the difference. This could be evidence of poor civic education by scheme

administrators to the members. However, 29% agreed that benefits accruing from DCS and DBS

would not significantly differ.

4.5 Members Opinion on DCS Projections

Members' opinion of scheme administration and benefits projections were

There is evidence of conservatism in members about which scheme suits them. Only one quarter of the sample population thought that DCS was the best option. As shown in table 4.12, members were inclined to DBS and Hybrid pension plan.

Table 4.12. *Sample population preferred pension scheme*

If you had an opportunity of free choice	Frequency	Percent
DCS	37	25.5
DBS	59	40.7
Partly DCS and partly DBS	49	33.8
Total	145	100.0

However, the choice of pension plan may have been influenced by lack of proper information

and induction of members on scheme categories and how they function as shown in figure 2.

Sample population assessment of clarity of AGM accounts and information presentation
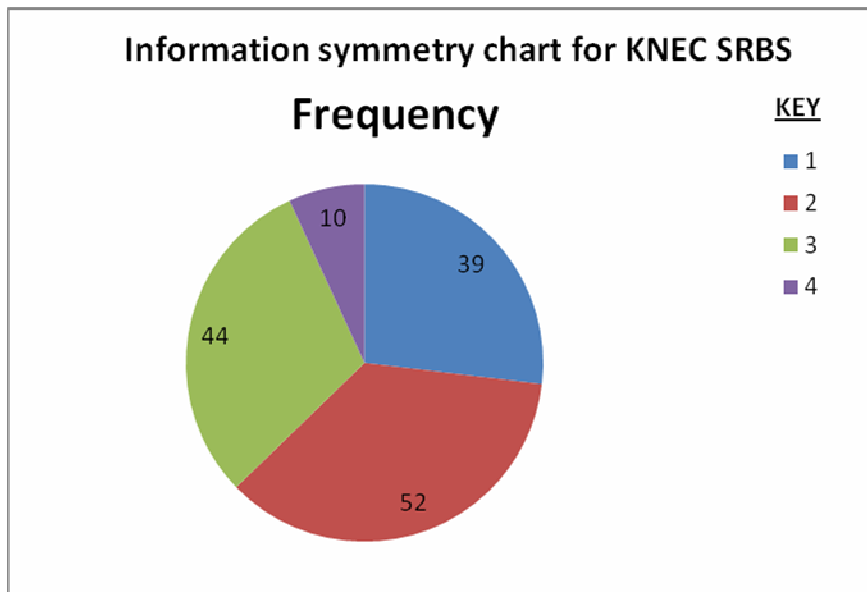
Fig.2
LEGEND
1. Strongly agree
2. Agree
3. Disagree
4. Strongly disagree

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This study set out to investigate the impact of pension scheme conversion from defined benefit to defined contribution at the Kenya National Examinations Council. A survey research design was adopted and respondents were served with questionnaires that captured their views on various aspects on the study theme. The results were coded and analysed using the statistical package for social sciences (SPSS) and tabulated as in chapter 4.

5.2 Summary

From the study it was noted that the greater number of KNEC work force are in the age group 35 years to 49. As such this could have a bearing in the way they viewed retirement issues given that the retirement age in KNEC is 60.

As far as the conversion of the pension scheme from DBS to DCS was concerned, the respondents (87.6%) felt this took a large part of their salary. However, since it was a Government directive, there was no option left to a member to choose another pension scheme plan.

The pension scheme conversion took effect from July 2011. Although this was a relatively short period to make informed financial performance assessment of the fund, the respondents felt there was no significant difference between DCS and DBS as shown in table 14. The views of the respondents are apparently in agreement with the result of the mathematical model outcome that showed the DCS to be operating at a low level of investment returns according to the returns report of the SRBS AGM in year 2012.

Information and knowledge are power tools in assessing a programme performance. The study revealed that there was information asymmetry in the running of the KNEC SRBS. Respondents

agreed that the SRBS management needs to do more in terms of members' education and clarity in presenting scheme accounts and other financial transactions.

5.3 Conclusions

This study brought several issues to light. Firstly, the Government directive to all its Departments and parastals to convert from DBS to DCS was one sided. Although, Government is the principal custodian of its citizen's welfare especially in old age, differences exist between departments and parastals in individual capacities to run different pension plans. Perhaps it required a stakeholder's participation in this decision in order to allow for appropriate choices of pension scheme plans by individual organizations like the KNEC, which are semi-autonomous.

It is also apparent that young employees are less motivated on matters of pension than their older counterparts are, say in the 50 years and above bracket. It may be a challenge to retain these young people, especially the professionals in Government service where there is no flexibility of choice of pension scheme and contributions are pegged on a scale (Treasury Circular No. 18/2010). This is reflected in the respondents' views as shown in table 4.12.

Lastly, the challenge to the sponsor and management of the KNEC SRBS is to provide members with adequate education on matters of pensions and pension scheme plans. In this way members could start feeling they would be sufficiently protected in their retirement.

5.4 Recommendations

The following recommendations were proffered for the KNEC SRBS in line with the results obtained in this study:

i)   That the sponsor should scan the market for investment advisers in order to maximise on the DCS investment portfolios since now DCS is the mandatory pension plan;

ii) In order to best realise the objective recommended in (i) above, the sponsor should put in place a mechanism for competitive bidding for service providers to the scheme including managers, custodian, auditors, actuaries and administrators.

iii) That the trustees of the SRBS be given adequate motivation, fiduciary and otherwise in order for them to discharge their mandate effectively.

Further study on retirement benefits schemes in Kenya

Following the outcomes of the study on the KNEC SRBS, it is apparent that other schemes especially in the public service sector have challenges that need immediate attention. If as directed by the government, they have embraced DCS a follow-up survey on how they are performing would be necessary in order to gauge efficiency in performance. Besides, DCS being an investimentwise-centred plan, it would be prudent to study and find out how different organisations are performing in investing members' funds.

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LIST OF TABLES

LIST OF FIGURES

Appendix A

QUESTIONNAIRE FOR KNEC PENSIONABLE STAFF ON THE ASSESSMENT OF THE IMPACT OF FUND ADMINISTRATION CHANGE FROM DBS TO DCS.

Dear respondent,

I, Johnson W. Mutheke, a final year PGD in Actuarial Science student at the University of Nairobi wish to request you for your time to complete this questionnaire. The information gathered shall be used to fulfil part of the requirements for my graduation.

You are requested to answer all the questions provided truthfully and honestly. Your responses will be treated in strict confidentiality and shall not be disclosed to any party except for the sole use of the academic requirements of the University of Nairobi for which it is sought.

Personal Data: (Tick one)

1. Age bracket:
   25-29 ☐ 30-34 ☐ 35-39 ☐ 40-44 ☐ 45-49 ☐ 50-54 ☐ 55-59 ☐

2. Gender
   Female ☐ Male ☐

3. Duration that you have been a member of the KNEC SRBS

   1-3yrs ☐   3-5 yrs ☐   5-7 yrs ☐   More than 7 yrs ☐

SECTION A: Extent of income effect to you due to pension scheme conversion from DBS to DCS.

4. As far as deduction of contributions from my salary is concerned, the effect due to scheme conversion was :(Tick as may be applicable)

   Very low ☐   Low ☐   medium ☐   high ☐   very high ☐

5. Job grade:(EC-)
   2 ☐   3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐

6. Do you have another source of income apart from the salary?   No ☐   Yes ☐

7. If YES to question 6, what approximate percentage does this other income form out of your total monthly earnings?   0- 30% ☐   30- 50% ☐ 50- 100% ☐   More than 100% ☐

8. What would you have preferred as a reasonable rate of contribution for pension purposes from your salary? 2% ☐   5% ☐ 10% ☐   20% ☐

9. What would you have preferred as a reasonable rate of contribution for pension purposes by your employer? 28% ☐ 25% ☐ 20% ☐ 10% ☐

SECTION B: Did the defined contribution scheme afford a better financial retirement position to the KNEC retirees as opposed to the defined benefit scheme?

10. Since the scheme conversion in 2011, has there been a significant growth in the scheme's capital base? Yes ☐ No ☐ I do not know ☐

11. If your answer to number 10 is yes, what would you say contributed to such growth? Investments ☐ members contributions ☐ interest from banks ☐ I do not know ☐

12. Given that, DCS grows through investments of scheme funds while DBS grows through employer/employee contributions and longevity of service, which scheme would suit you be4st? DCS ☐ DBS ☐ None ☐

SECTION C: To what extent did the scheme conversion affect the employer and employee contributions?

13. Since the conversion of the pension scheme from DBS to DCS the capital base of the fund has significantly grown.
Yes ☐ No ☐

14. The 8% movement on contributions by employer (28% to 20%) and 8% movement for employees (2% to 10%) favoured one party.
Yes ☐ No ☐

SECTION D: In terms of the projected benefits, is there a significant difference between the benefits accruing from DCS compared to those realizable from DBS for a retiree?

15.   I do not foresee a significant difference in benefits accruing from DCS compared with those from DBS in view of the DCS investments earnings so far.
Yes ☐ No ☐ I do not know ☐

16.   If you had an opportunity of free choice what mode of funding would you recommend for your retirement benefits scheme.
DCS ☐ DBS ☐ partly DCS and partly DBS ☐

17.   To what extent is the DCS more motivating than DBS to encourage you to stick with your current employer till retirement
Excellent ☐ Good ☐ Satisfactory ☐ poor ☐

18. The annual returns on the scheme are not presented in a clear and plain accounting format to enable me to do a smart comparison of DBS and DCS plans.

Strongly agree ☐ agree ☐ disagree ☐ strongly disagree ☐

I sincerely thank you for making time to complete this questionnaire. May God bless you. J.W. Mutheke
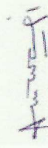
Appendix B

Kenya National Examination Council SRBS (DC&DB) Trustees Annual Report
Summary of the Financial Statements
Report & Financial Statements for the period ended 30 June 2012

STATEMENT OF CHANGES IN NET ASSETS

	Note	June 2012 Shs	June 2011 Shs
Income from dealings with members			
Contributions receivables	1	119,326,766	105,317,080
Actuarial deficit funded by the sponsor		77,720,000	105,317,080
Outgoings from dealings with members			
Transfer to defined contribution scheme	2	(455,441,106)	-
Benefits payable to withdrawing members	3	(12,692,788)	-
Transfers out	3	(777,549)	-
Pension paid and payable	4	(188,697,871)	(46,861,577)
		(657,609,313)	(46,861,577)
Net (decrease)/increase from dealings with members		(460,562,547)	58,455,503
Return on investments			
Investment income	5	21,141,230	45,941,023
Change in fair value	6	(44,910,087)	(43,054,830)
Less: investment expenses	7	(2,384,987)	(3,202,581)
Net return on investments		(26,153,844)	(316,388)
Administrative expenses	8	(3,823,524)	(4,610,928)
(Decrease)/increase in net assets for the year		(490,539,915)	53,528,187
Net assets available for benefits at start of year		950,938,510	897,410,323
Net assets available for benefits at end of year		460,398,595	950,938,510

STATEMENT OF NET ASSETS

	Note	June 2012 Shs	June 2011 Shs
Assets			
Investments - at fair value	9	351,849,463	708,732,507
Investments - at amortised cost	9	22,538,556	220,108,063
Amount due from the sponsor	10	89,211,000	-
Withholding tax recoverable		31,565	-
Contribution debtors due from DC scheme	11	2,506,975	21,429,121
Other receivables and accrued income		-	2,487,405
Amount due from DC scheme		-	-
Cash at bank	12	2,119,071	2,943,436
Total assets		468,256,630	955,700,532
Less: liabilities			
Accrued expenses	13	7,858,035	4,762,022
Total net assets available for benefits		460,398,595	950,938,510

The financial statements on pages 5 to 19 were approved for issue by the trustees

Source: Trustee's annual report- KNEC SRBS 2012

Appendix C

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UNIVERSITY OF NAIROBI

·SCHOOL OF MATHEMATICS

Email: maths@uonbi.ac.ke
Telegrams: "Varsity" Nairobi
Telephone: 4445751

P. O. Box 30197
NAIROBI
KENYA

August 28, 2013

The Chief Executive Officer
Kenya National Examinations Council (KNEC)
NAIROBI.

Dear Sir,

RE: REQUEST FOR DATA AND INFORMATION FOR RESEARCH

The School of Mathematics (UoN) has been offering a B.Sc. and graduate courses in Actuarial Science for more than ten years. The students in these programmes are required to undertake a research project to qualify for their degrees.

The purpose of this letter is to request your office to assist **Johnson Wambua Mutheke** – I46/68532/2011 who is pursuing a Postgraduate Diploma in Actuarial Science in our school with the necessary data and information to enable him complete his project.

I promise to make sure that confidentiality is maintained throughout the study and the results will not be used for any other purpose other than academic matters.

Your assistance in this regard will be highly appreciated.

Yours faithfully,
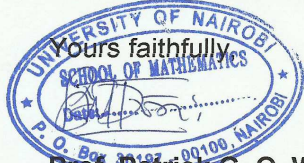
Prof. Patrick G. O. Weke
Head, Actuarial Science and Financial Mathematics Division.