

Bishop Stuart University
JOURNAL
of
**DEVELOPMENT, EDUCATION,
TECHNOLOGY & AGRICULTURE**
(JODETA)

Volume 1 / February 2023



Bishop Stuart University
Mbarara – Uganda

Published by
Bishop University Press
P.O. Box 09, Mbarara – Uganda

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ISSN-L: 2959-0523

Printed by
Ream Holdings Limited
reamholdings@gmail.com

EDITORIAL NOTE

This Journal is a testament of Bishop Stuart University's claim to be not just any other learning institution but a research based establishment that creates new knowledge and contributes to finding solutions to the nation's problems.

The Articles in this Volume of the Bishop Stuart Journal of Development, Education and Technology (JODET) cover a wide range of disciplines that reflect the serious intentions of the institution to provide an avenue for development that is commensurate with the needs of a vibrant economy like Uganda's.

Research is the bedrock of knowledge on which the future of a stable nation can be founded. It is a reflection of the thinking of the future leaders whose preoccupation is with creating a better tomorrow for everyone, regardless of their pursuits in life. At BSU we build for the future. *Our God Reigns!*

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A FRAGILE AND DIVISIVE UNITY OVER RELIGIOUS EDUCATION CURRICULUM IN UGANDA

Fred Sheldon Mwesigwa

ABSTRACT

Although Uganda is legally defined as a secular state, it is one of the most ‘religious’ nations in the world in terms of its rich religious though mostly volatile history and current record numbers of religious adherents compared to those who describe themselves as atheists or agnostics. The introduction of Islam, Anglican and Roman Catholic religious belief systems in Uganda ushered in an era of competition for converts which inevitably led to conflicts, including religious wars.

Formal Education, mainly through missionary education, centered on promoting denominational identity and despite government efforts to legislate on the need for religious education to address the first national goal of education of ‘promoting national unity and harmony’, the Christian Religious Education (CRE) and the Islamic Religious Education (IRE) curriculum have largely remained catechetical and not dialogical, which compounds the already existing tensions between members of different religious denominations as illustrated by interviews done in schools. There is a need to review the curriculum to address the gaps cited in this article that seeks to address the multi-religious composition of schools and society to safeguard against religious tension and conflict which are proving to be endemic.

RELIGIOUS SCENE OF UGANDA

Before the advent of Islam, introduced by Arab traders in 1884, and Anglicanism, ushered in by the Church Missionary Society (CMS) from Britain in 1877, and Roman Catholicism, brought in by French Roman Catholics in 1879, African traditional beliefs were the main religious creeds practiced by the local populations. Despite the existence of some conflicts among the adherents of African traditional religion(s), the competition for power among chiefs in Buganda, for example, only became more intense with the onset of foreign religions (Oded 1995, 62).

The uneasy relationship between the Muslim Arabs, the Anglican Britons and the French Catholics resulted in creating different power centers in Buganda, thereby resulting in conflict. The historical religious conflicts which involved African traditional religious adherents, Christian (Roman Catholic and Anglicans) and the Muslims, were motivated by political, economic and religious reasons (Mwesigwa 2014, 67).

Between 1888 and 1892, religious wars were fought in Buganda with the resultant effect of distribution of power and resources depending on the victors and vanquished. Religious alliances were a key feature of the religious wars and these included a war between Roman Catholics, Muslims and Protestants (or Anglicans) who united to fight King Mwanga who at the time allied with African traditional religion(s). Another war took place between Roman Catholics and Protestants (or Anglicans) who fought against each other and then together battled against Muslims (Mwesigwa 2014, 43).

The establishment of formal or secular education in Uganda was pioneered by European missionaries and not the British colonial government that took over political leadership in 1894 when Uganda was declared a British protectorate, as Sekamwa posits:

The aim of missionary education from its introduction in Uganda from 1877 to nearly 1925 was to establish Christianity and its practice in the country and to convert as many people as possible to that faith. Other educational aims were secondary. (Sekamwa 1994, 224)

Although the colonial government established regional government-founded schools in 1956 with a view to neutralize the increased denominational nature of education in Uganda, and despite the first post-independent Uganda government introducing a policy to neutralize religious-founded schools, the effect of denominational nature of education is evident to the present day. Largely ignored is the national educational policy review that provided for the curriculum to promote respect and understanding of other religions (Watson 1993, 44).

RELIGIOUS COMPOSITION AND THE LEGAL CONTEXT OF RELIGIOUS EDUCATION

The most recent population census for Uganda affirms that Uganda is a strongly 'religionized' country where only very few people do not identify with a particular

religion. Religious identity is even easily distinguished through the naming of children. The problem though is that a good proportion of Ugandans, whilst belonging to and identifying with their respective religious traditions, also subscribe ‘underground’ to African traditional religion(s) in a syncretistic manner, echoed in the dictum that ‘Christianity in Africa is a mile wide and an inch deep.’

Table 3 Population of Uganda by Religion 2014

Roman Catholic	39.3
Anglican (Church of Uganda)	32.0
Islam	13.7
Pentecostal	11.1
Seventh Day Adventists	1.7
Eastern Orthodox	0.1
Baptists	0.3
Unaffiliated	0.2
Traditional Religion	0.1
Other religions	1.4

The 2014 census reveals that while there was a drop in the population of Roman Catholics and Anglicans (Church of Uganda), there was an exponential growth among Pentecostals and a slight increase among Muslims. The intense evangelization by the different religious denominations and faith traditions is greatly responsible

for the changing demographics of Uganda. Tension and conflict has been part of the evangelization and it is for this reason that education policy has always been cognizant of this aspect.

The desire by the nation/state to promote national unity, mindful of the fragile religious relationships between denominations, is emphasized by the promotion of national unity, which is point number three of the National Resistance Movement (NRM) current government's Ten Point political programme which specifies, 'Consolidation of national unity and elimination of all forms of sectarianism' (Museveni 1997, 217).

Similarly, 'Forging national unity and harmony' is Uganda's first national goal of education (Uganda Government 1992, 6). The biggest question though is to what extent the Religious Education curriculum has addressed the promotion of national unity and harmony and the safeguarding against religious intolerance and discrimination, two of the greatest social ills of Uganda as a nation/state (Mwesigwa 2014, pp. 36-39).

The legal status of Religious Education in the Uganda curriculum derives from the significance of the religious composition of the country and the volatile religious history. Post-independent governments have endeavored to maintain a balancing act of the different religious traditions by defining Uganda as a religiously neutral country, thus legally defined as a secular state.

The term 'secular' in describing the Uganda nation seems to have been derived from an interpretation of the Uganda Constitution Article 5 Part 1 of Chapter 2, entitled: The Republic of Uganda, which states that 'Uganda is a sovereign state and a Republic' (Uganda

Government 2015). Further to this is Article 7, entitled Non-adoption of a state religion which specifies that, ‘Uganda shall not adopt a state religion’ (Uganda Government 2015, 31).

Uganda’s definition as a ‘secular state’ is contradictory since religion is a dominant part of the people’s lives and the identity of the nation. The national motto of Uganda is: ‘For God and My country’ and the national anthem has got phrases like: ‘Oh Uganda may God uphold thee’, which constitutes deep religious sentiments that evoke and echo the religious life of the nation. All local and national political functions begin with prayers that are led by different religious leaders, alternately, to reflect the diverse religious composition of the country (Mwesigwa 2014, 42).

The trend of the religious composition of the country shows that unlike many other countries where religion is increasingly being relegated to the periphery in a post-Christian era (Mangalwadi 2009), in Uganda people are becoming more ‘religionized’, the major challenge being religious rivalry, tension and conflict that often accompany diversity.

LIMITATIONS OF RELIGIOUS EDUCATION CURRICULUM, AIMS AND TEXT-BOOKS TO PROMOTE UNITY IN DIVERSITY

Religious Education curriculum in Uganda is distinctly restricted to Christian Religious Education (CRE) and Islamic Religious Education (IRE) syllabi. The policy statement on Religious Education reads:

The Religious Education syllabus is composed of two parts, namely, Part A: Christian Religious Education (CRE) and Part B: Islamic Religious Education (IRE). Individual schools will decide which part(s) they want to teach, depending on their religious population and facilities available (NCA 2000, 515).

From the outset this policy statement does not acknowledge other religions apart from Christianity and Islam, yet the 2014 census shows that there are other minority religious traditions, traditional religion adherents and unaffiliated religious groups. While discussing the role of an RE teacher in a multi-religious environment, Read *et al* (1995, 7) argues for the need for RE teachers to be aware of the commitments of students or non-religious commitments so as to give due respect to their different standpoints (Watson 1993, 7; Hughes in Wright and Brandom 2000, 36). The failure to provide for students of other religious traditions in this policy statement creates a dilemma of not attaching significance to minority groups which can play out in the form of religious intolerance and discrimination.

Although the Ugandan Christian Religious tradition is presented as a monolithic tradition in the curriculum and despite the fact that the Joint Christian syllabus for primary and secondary schools was formed in 1974 by the Roman Catholic and the Anglican (COU) faith traditions, the Joint syllabus doesn't give prominence to the concept of unity in diversity, nor is the syllabus interpreted the same way. The practice of the Roman Catholic teachers to teach the Joint Syllabus in Roman Catholic schools and Anglican (COU) teachers in Anglican (COU) schools

raises doubt on the ‘unity in diversity’ concept to be fully realized.

Another complex issue is that Pentecostals now comprise 13.2% of Uganda’s population, yet they did not participate in the formulation of the Joint Syllabus, nor do they have any say in its articulation.

In the East African region: Kenya, Tanzania, Burundi and Rwanda, like Uganda, continue to provide for a single faith curriculum that promotes a particular religion to the exclusion of others. This goes against the prime principle underpinning the study of religion in an educational context which should not be ‘to evangelize or induct pupils into predetermined religious view-points but to create capacities to understand and think about religion’ (Schools Council Publications 1971, 37). Rwanda, mainly in view of the after-effects of the 1994 genocide that saw an ugly side of the use of religion in not only dividing citizens but also in witnessing the killings under the ‘guise’ of religion, introduced a blend of a single faith curriculum but which gives opportunity to pupils and students to explore other religions and values and issues outside religion in order to promote respect and tolerance to people of other faiths and ethnicities (Rwanda Education Board 2015).

In Uganda, the revised Christian Religious Education (CRE) and the Islamic Religious Education (IRE) aims have not been any better in addressing the concept of unity in diversity which is essential in promoting respect and understanding of other religions and other belief systems in a multi-faith or ‘secular’ society that Uganda is.

THE PRIMARY SCHOOL CHRISTIAN RELIGIOUS EDUCATION AIMS OF 2000

The 2000 revised Primary School CRE aims are contained in Volume Two of the Uganda Primary School Curriculum and are specified thus:

1. To develop awareness and knowledge of God's presence and purpose in the world as revealed through His creation, the Bible, the Christian community, the life and teaching of Jesus Christ and the Holy Spirit living in us today.
2. To develop Christian values of love, joy, peace, service and build a personal Christian ideal to inspire his/her development and growth to maturity.
3. To live a committed Christian life following in the footsteps of Jesus Christ.
4. To acquire the practice of praying alone and in fellowship with other Christians.
5. To get knowledge of the teaching of the Bible.
6. To appreciate the common elements in traditional and other religions and Christian beliefs.
7. To develop the Christian moral values of honesty, concern for others, sharing, tolerance and justice.
8. To develop personal qualities of leadership to serve others in the community.

(NCA 2000, 516)

The sixth CRE aim is the only one out of the eight that addresses inter-relationship between a Christian pupil and pupils of other religious traditions. Even then, the aim is only concerned with appreciating commonality between Christianity and other religious traditions and not how to explore them in view of ‘learning about’ and ‘learning from’ but for Uganda’s context even more so, promoting respect for other religions or non-religious philosophies, thus reducing tension and conflict.

PRIMARY SCHOOL ISLAMIC RELIGIOUS EDUCATION (IRE) AIMS OF 2000

The revised 2000 Primary School IRE aims as contained in Volume Two of the Uganda Primary School Curriculum book published by the National Curriculum Development Centre (NCDC) are mainly concerned with spiritual nurture of pupils and are catechetical and not dialogical. The IRE 2000 aims are to enable the student:

1. To experience and live as a practicing Muslim at school and at home, thus enabling her/him to appreciate God’s relationship with her/him and her/his relationship with others in different situations.
2. To enrich her/his life and develop the whole personality.
3. To foster reconciliation between Islam and her/his cultural values of the individual learner for happiness, stability in character, peace in an individual, in the home, the community and the nation at large.

4. To acquaint herself/himself with the teachings of the Quran.
 5. To appreciate and internalize the value and practice of the teachings of Islam as taught in the Quran and as practiced by the Prophet to develop a sense of morality in the individual learner according to the teachings of Islam.
 6. To grasp the basic concepts of Islamic theology so that she/he can recognize where Islam and Christianity overlap and where they differ.
 7. To study the principles and the life of Prophet Muhammed.
 8. To trace the origin and development of Islamic civilization, culture and describe the significance of Islamic historical events to the spread and development of Islam.
 9. To live an integrated life and live in harmony with others.
- (NCA 2000, 599)

Eight of the revised aims of IRE are concerned with enabling pupils to become practicing Muslims and the sixth aim, similar to the primary school CRE aim (see page 15 above) meant to assist a Muslim pupil to compare Islam to Christianity without necessarily engaging with issues of respect and understanding, let alone aid, the promotion of unity in diversity.

The ninth aim is explicit in expecting pupils to develop interpersonal relations with pupils of other faiths. However, there is a challenge for pupils of other faiths who may attend Muslim-founded schools that are grant-aided by government. Wouldn't it imply that these should

be candidates for conversion to the Muslim faith? If so, would this be the intention of government policy? Not at all! But that might indeed be the interest of foundation bodies.

SECONDARY SCHOOL CHRISTIAN RELIGIOUS EDUCATION (CRE) AIMS OF 1970'S

The Secondary School CRE aims are expressed in the Uganda National Examinations Board (UNEB) Regulations and Syllabuses. These are stipulated thus:

1. To study man's understanding of his relationship to God and fellowmen in the Bible, in the history of the Church and in the African traditions.
2. To deepen the student's awareness of his relationship with God and his fellowmen through Jesus Christ.
3. To present an understanding of the present Church in East Africa, making him aware of the circumstances from which this structure has arisen.
4. To introduce him to a range of service to the Church in the life of the nation.
5. To help the student to appreciate the contribution of the Church in East Africa to the Universal Church.
6. To develop the student's understanding of the African world view and of his background generally.
7. To develop the student's ability to relate elements of his African traditional religious views with those of his Christian world view.

8. To develop the student's ability to evaluate what he is seeing and experiencing daily in light of the African traditional religions and Christianity.
9. To develop the student's knowledge of those elements which are common to traditional religions in East Africa with the main variations and detailed study of one of them.

(Uganda National Examinations Board 1996, pp 48-49)

While the first five aims are exclusively concerned with spiritual nurture of students within the Christian Religious tradition, the sixth, seventh, eighth and ninth aims of Secondary School CRE give prominence to the resourcefulness of the African traditional religion(s) in enabling students to appreciate the evolution of the concept of worship and belief in a Supreme Deity in Africa prior to the onset of Islam and Christianity. The exploration of the African traditional religion(s) might be a key resource to enable students appreciate the existence of other non-religious philosophies.

The lack of exploration of other religious traditions like Islam, which is a significant religious tradition in Uganda, suggests that Christian students will not develop good interpersonal relations with Muslims or members of other minority religious traditions reflected in Uganda's census. Muslim students who attend Christian-founded schools that are grant-aided by government, which is a very common practice, will be brought up to appreciate Christianity as the default religion since they will be subject to proselytization. All religious-founded schools, depending on which foundation-body they belong to,

always conduct daily morning prayers and Church services or Juma prayers are normally compulsory (2014).

In view of the historically disadvantaged position of Muslims and their continued complaints against discrimination by the mainly Christian-dominated and Christian-led country (Kayunga 1994), it will be difficult to ensure unity and harmony.

SECONDARY SCHOOL ISLAMIC RELIGIOUS EDUCATION (IRE) AIMS

Unlike the Secondary School CRE aims, the IRE aims have provision for inter-personal relations between Islam and other religions. Nonetheless, IRE aims are mainly concerned with spiritual nurture of students within the Islamic Religious tradition as specified below:

- a) To develop in the student an appreciation of and a positive response to spiritual and moral values based on belief in God as expressed in the Holy Quran and in the teachings and exemplary life of Prophet Muhammed (Peace Upon him).
- b) To help the student develop a sense of awareness of belonging to the Muslim Brotherhood, and have respect and tolerance for other religions.
- c) To help students develop an awareness of the Muslim community and how it came into being by studying the history of its civilization with specific reference to East Africa.
- d) To help the student develop a sense of awareness of interaction between faith and good works through

the study of Islamic doctrines, rituals and festivals based on the Holy Quran, Hadith and Fiqh.

(Uganda National Examinations Board 1996, 49)

The assumption of the IRE Secondary School aims is that they are for Muslim students who will be introduced to Islamic doctrine and practices that will result in a groomed Muslim student. The challenge with this aim is that in a majority of Muslim-founded but government grant aided Secondary Schools, we have a good number of Christian students who attend mainly because of nearness of the school to their homes or its good academic standards. Since Religious Education is taught according to the religion of the foundation body and since there is no exclusion clause in the policy, Christian students will therefore be subjected to a curriculum of nurture within the Islamic faith! Religious tension and conflict is inevitably part of this situation in Muslim and Christian founded schools (Mwesigwa 2014).

CONTENT OF CRE AND IRE TEXTBOOKS AND THE MULTI-FAITH CONTEXT

The CRE primary and Secondary School Christian Living Today Books are largely concerned with the promotion of the Christian Religious tradition as expressed in the religious beliefs, practices and values. There is not much deliberate effort put in addressing the multi-religious nature of Ugandan society, let alone the religious composition of the students.

The CRE pupils' textbook for Primary Six pupils (1976) explores the concept of Christian brotherhood and

sisterhood without relating it to the different Christian religious denominations that we have in Uganda. The challenge with this curriculum is that teachers are not able to relate the topic to the daily experiences in the school and community setting. Since the textbooks do not give due recognition to the different Christian religious denominations or even other religious denominations, these pupils will not be able to relate well with each other as we shall discuss in subsequent section (see pages 20-21) on evidence for religious discrimination and intolerance.

While the content of the new Primary School IRE pupils books do not deal with other religious traditions as required by the expectations of the revised IRE aims, IRE secondary school text-books present the Islamic religion as superior to the Christian religion thus:

‘Most western writers hold that Prophet Moses (Musa) initiated Judaism, that Prophet Jesus (Isa) initiated Christianity and that Prophet Muhammed (May peace of Allah be upon all of them) initiated Islam. Muslims disagree with this statement. They claim that Prophet Muhammed (May peace of Allah be upon him) did not preach a new religion, but merely completed the mission of earlier Prophets, which was, in essence, the same message and guidance from God. They thus declare Islam as the perfection of the religion of God left incomplete by the prophets before him’ (Quraishy 1978:1)

Quraishy, therefore, sums up the curriculum intention of IRE in secondary schools as intended to nurture Muslim students in their faith and enabling them to appreciate how uniquely placed it is above the Christian religious tradition. The Secondary School text-books of

Islam: Book One and Book Two are concerned with the spiritual nurture of students within the Islamic Religious tradition through exploring the practices of Islam (Quraishy 1987: xi) and Islam as the ultimate religious faith.

Prophet Jesus (Isa) according to Islamic teaching was a forerunner of Muhammed. While this might be a generally accepted Islamic teaching, a curriculum that is cognizant of the place of Jesus (Isa) in the Christian Religious tradition and mindful of the presence of Christian students in a Muslim founded school, would have approached the subject more sensitively to safeguard against religious offence that may result to Christians in the class and thus lead to tension and conflict.

EVIDENCE OF DISCRIMINATION AND INTOLERANCE IN CURRENT TRENDS OF RELIGIOUS EDUCATION

There is evidence in the public spaces, especially through media and the research I conducted in secondary schools in Uganda, to show religious uneasiness in the relationships between students of different religious traditions. In the year 2000, the Roman Catholic Church raised a complaint against the government for the unfair process of restructuring Primary Teachers Colleges which had resulted in withdrawing government support to 14 Roman Catholic PTCs, retaining only 7 while 22 Church of Uganda PTCs (Anglican Church identity) were to be supported. Although the Ministry of Education technical committee made a report on the restructuring of PTCs, including criteria of looking at relative equity in the share

of government supported PTCs among major religious denominations, the political pressure resulted in the rescinding of the recommendations.

A Parliamentary Investigation team dated 18th April 2000 concluded by recommending that six Roman Catholic PTCs that had been closed be reopened. The underlying problem was that at the time, the Minister of Education Hon Dr. Kiddu Makubuya, was a member of Church of Uganda (Anglican), and it was assumed perhaps that he influenced the technical team. Religious intolerance, perceived or real is part of the psyche of a majority of Ugandans. According to *The Daily Monitor* newspaper of 23rd July 2001, a lead article said, ‘Catholics unhappy with cabinet appointments.’ This article was followed by another of 1st October 2001 in which Hon Winnie Byanyima, the then Member of Parliament for Mbarara Municipality, said: ‘President Y.K. Museveni (Church of Uganda member) was ignoring Catholics and Muslims in his social, economic and political programs.’

Real or imagined, the societal evidence for complaints about religious discrimination and intolerance is a result of a curriculum that these politicians were exposed to during their upbringing, perhaps ironically echoing the New International Version Bible message of Proverbs 22:6 which reads: ‘Train a child in a way he should go, so that when he is old he will not turn from it.’ The current curriculum will need to be reviewed to address these challenges, mainly through addressing mindset challenges that are formed at lower primary and secondary school levels.

The Muslim question is another sore part of the strained relationship between members of different

religious denominations in Uganda. The Allied Democratic Force (ADF) is an Islamic body led and dominated by a military outfit based in the Democratic Republic of Congo, comprising of Ugandans who are committed to fighting and removing the Christian-led government of President Y.K. Museveni.

Kayunga in Mamdani (1994) attributes the rise of Islamic fundamentalism to the historically disadvantaged position of Muslims right from the colonial times. It is ironical that although the population of Muslims in Uganda is small (see Table on page 10 in Introduction section), the ADF is committed to establishing an Islamic State. The motivation could be grounded in the Islamic Religious Education at Primary and Secondary School IRE Curriculum that Islam is superior to Christianity (Mwesigwa: 2000; Quraishy: 1987).

Based on the Post-graduate Research that I carried out in 2000 in Mbarara Municipality and particularly in the non-religiously founded Ntare School, religious tension and conflict exist in Ugandan schools. The Roman Catholic student leader I interviewed argued that although the school was a government-funded school, unlike a majority of religiously-founded schools in Uganda, there was religious intolerance among students (Mwesigwa 2000: 200).

According to the student leader, Roman Catholic and Muslim students were demeaned and often ridiculed through school campus public talk, jargon and sometimes even in the drafting school policies. The Muslim student leader revealed to me that he was shocked when his fellow classmates asked him to forward their resolution, since he was at the same time class counselor, to the school

administration appealing for pork to be added to the school menu, which was a taboo for Muslims (Mwesigwa 2000:201).

Such an action is a reflection of the lack of respect and tolerance or sensitivity for religious beliefs and values from members of other faiths, a key expectation of a multi-faith RE (Watson 1993:43; Jackson 1997:74; Arthur 1990:43).

In Uganda, we have had a backlash from the recently concluded presidential and parliamentary elections whereby the question of religion raised its ugly head, an indicator that peoples' mindsets are tuned to interpret even national political events from the perspective of religion instead of perhaps other dynamics.

According to *New Vision* of 22nd January 2021, the lead article reported that the Government blamed the National Resistance Movement (NRM) party loss of the votes in Buganda to the Catholic Church, which the Minister of Presidency, Esther Mbayo, attributed on the influence of the voting patterns through clandestine campaigns.

The Daily Monitor newspaper of 25th January 2021 raised a religiously sensitive point by quoting Hajji Mutumba Nsereko, the Head of Uganda Muslim Council's Public Relations Office proudly announcing how 50 Muslim Members of Parliament had been voted in the recently concluded parliamentary elections, describing it as a Muslim wave that would address the historically disadvantaged status of Muslims in a Christian dominated country.

The subject of interplay between religion and politics in a negative way was raised too, following the Ugandan

2016 presidential and parliamentary elections (Alawa Henni and Sentongo Jimmy Spire 2016). The complaint about religion being a factor in political decisions of sections of Uganda's society is an indicator of the underlying challenge of the strained relations, tension and conflict.

CONCLUSION

Although Uganda is a 'secular country', denoting the religious neutrality of the country and despite the country being multi-religious with only a minority non-theistic, the aims of Religious Education are mainly focused on the spiritual nurture within respective religious traditions yet students of different religious traditions attend schools of single faith RE. The government of Uganda has been conscious of the historical religious conflicts and current tensions in directing its educational policy statements that would have guided the Religious Education Curriculum designers to provide for the promotion of national unity and harmony as the first national goal of education.

Unfortunately, this has not been given emphasis by religious faith traditions which are responsible for drawing the aims of Religious Education. There is a religiously fragile Ugandan nation whose children and youth are exposed to a potentially divisive curriculum that may promote religious intolerance and discrimination. Religious leaders, teachers and all key stakeholders need to be concerned about the current Religious Education Curriculum and call Government for a review of the Aims of CRE and IRE for a rethink of the purpose of Religious Education in schools so that in addition to spiritual nurture

of students there is an address of the aspect of promotion of national unity and harmony, Uganda's first national goal of Education.

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**ON-SPOT BILLING SYSTEM,
COST OF WATER,
REVENUE COLLECTION MECHANISM &
REVENUE COLLECTION PERFORMANCE
OF PUBLIC UTILITY ENTITIES**

Evidence from NWSC Mbarara Centre

Ampiire Nekemia^{*1}
Assoc. Prof. Gershom Atukunda^{*2}
Corresponding Author
Arthur Nuwagaba^{*3} Co-Author.

ABSTRACT

Revenue collection performance is vital in promoting efficiency in the service delivery and economic development of organizations. The purpose of the study was to determine the contribution of on-spot billing system, cost of water and revenue collection mechanism on revenue collection performance of public entities in Uganda. The study objectives were to establish the contribution of cost of water on the revenue collection performance in NWSC, to examine the contribution of revenue collection mechanism on revenue collection performance in NWSC, and to find out the relationship between on spot billing system and revenue collection performance in NWSC.

The study was guided by the cash management theory which focuses improving liquidity and it adopted a cross-sectional research design. Data was collected using a questionnaire and an interview guide. 108 respondents

participated in the study. Data was entered into SPSS, and analysed using descriptive statistics.

Findings show that the cost of water significantly contributes to revenue collection performance in NWSC, Mbarara Centre. Results also indicate that location of pay points, the failure to automate revenue collection, the number of pay points, and mode of paying bills significantly contributed to Revenue Collection Performance Findings. Further affirm that on spot billing has a significant effect on revenue collection performance at NWSC because it enhances revenue collection performance.

Basing on the results of the study, the study recommends that the government should subsidise more the cost of water, customers be engaged in the pricing or mode of payment for water bills, number of pay points be increased and establish more convenient ways of paying for water like of mobile money agents and more attention be attached on improving on the on-spot billing system and meter reading challenges and also customers be sensitized on their roles to NWSC.

KEY WORDS: On-Spot Billing System, Cost of Water, Revenue Collection Mechanism, Revenue Collection Performance.

Introduction

Revenue collection is very important for every organization in the world as it enables the organization to acquire assets which are not liable to debt and which the organization uses to develop (Ngotho & Kerongo, 2014). More importantly, high revenue collection performance is vital to promote efficiency in the service delivery and

economic development of the countries and organizations.

USAID (2015) argues that in relation to the delivery of services, billing is the principal mechanism that drives all cash flow and is the main source of customer information. Billing is thus critically fundamental for NWSC to succeed. When much of NWSC revenue comes from the delivery of services the customers' needs to bill customers regularly and accurately, payment invoices that reflect the true nature and quantity of services delivered are more likely to be paid. Agrawal (2008) argues that improving billing, as well as collection services, will have a swift impact on the revenue streams of a service provider. In relation to the provision of water and sanitation, the author argues that any successful billing practice must ensure that bills are raised on a monthly basis and based on volumes. This way customers pay for what they consume. This is best carried out through the adoption of 100 per cent metering of customer connections.

However, it is known that at NWSC, some customers are connected and given water even without meters. Agrawal (2008) posits that effective billing and collection systems that are based on these principles can bring about immediate improvements in revenue streams.

Regardless of the existence of on-spot billing and different platforms for payment, growth in arrears continues to be one of the challenges affecting service delivery in most of the Areas. For instance, during the FY2016/17, arrears increased by 39%, from Ushs63.2 billion in FY2015/16 to Ushs87.8 billion. This is the same for Mbarara Centre which has reported an increase in

arrears UGX 3,654,973,869; 3,724,722,479; and 5,874,979,852 in 2015, 2016, and 2017 respectively (Integrated Annual Report, 2016, 2017). With such an upward trend in arrears accumulation at the corporation, there is need to evaluate the influence of on spot billing system on, revenue collection mechanism, and cost of water revenue collection levels at the corporation with a view of making recommendations on how the accumulation of arrears/uncollected bills can be mitigated based on the new study findings.

Problem Statement

Water consumers both individual and cooperate organisations have always avoided paying their water bills which led NWSC to face huge financial budget deficits. NWSC previously used flat rate system of billing water consumers. This is where there was a flat monthly levy on whoever had water connection. This situation was no better as it led to high operating costs and less returns.

The board and management later introduced the metering system in a bid to enable customers pay for exactly what was consumed. With the metering system, the meter recorded the amount of water consumed, after which a bill was sent to the consumer for payment. However, NWSC officials did not consistently record monthly meter readings. This system also had loopholes resulting into over or under billing the customers. Complaints still emerged from customers who did not receive bills.

As a mitigating measure, NWSC came up with On-spot billing system where the billing of water is done and

bill delivered to customers immediately after meter reading.

Despite of all the efforts by NWSC to improve on revenue collection performance, NWSC still grapples with huge unpaid water bills or arrears. For instance during the FY2016/17, arrears increased by 39%, from UGX.63.2 billion in FY2015/16 to UGX.87.8billion. In particular Mbarara Centre arrears increased from UGX.3,654,973,869 in 2015 to UGX.5,874,979,852 in 2017 (Integrated Annual Reports, 2015,2016, 2017).

Literature shows that revenue collection performance is associated with water billing systems, Cost of water and Revenue collection mechanisms. However, the cause for ever increasing water bill arrears in NWSC is still unexplained hence the cause for this study.

Theoretical foundation of the study

The study was guided by the cash management theory. Cash management theory tends to focus on how to improve on liquidity and reasons holding cash (Lawrence, et al., 1984). Efficient management of cash involves collecting debts as early as possible (shorter average collection period) and paying accounts payables as late as possible (longer average payables period) without damaging credit worthiness of the firm (Soenen, 1993). For instance, there are several reasons for holding cash: to cover transaction needs; for precautionary motives; for speculative purposes; for compensatory reasons, among others (Brigham, et al., 2005). Cash balances are determined by the level of daily, weekly, and monthly inflows and outflows and although the generation process

may be continuous, inflows are unpredictable and uneven, (Block & Hirt, 1992).The theory was adopted to investigate the cash cycle that is the billing system, revenue collection mechanism, and cost of water and revenue collection performance.

Literature Review

The concept of on-spot billing system is relatively new in Uganda. From the foregoing discussion above, several studies on the global stage have been carried out in reference to on-spot billing system. However, few researches have been done in Uganda to show the efficacy of such as a system as shown in the review of literature above.

Evidently, while majority of global and local literature have concentrated on the qualitative aspects of on-spot billing system, such as opinion and perceptions of the on-spot billing system users and acceptability of the on-spot billing system, quantitative aspects of on-spot billing system have not been adequately explored. Hence no such research has been done on the effect of on-spot billing system on revenue collection performance at all. This study therefore seeks to assess the effect on-spot billing system has had on revenue collection performance at National Water and Sewerage Cooperation and disclose any link that may exist between these parameters.

Research Methodology

Research Design

The researcher adopted a cross-sectional research design, a cross-sectional research design is the study of a particular phenomenon (or phenomena) at a particular time (Paul & Jeanne, 2013). Cross-sectional studies often employ the survey strategy (Easterby-Smith et al. 2008). The study was both descriptive and analytical in nature. The descriptive aspect provided the overall understanding of the data.

According to Saunders, et al., (2009), the descriptive aspect includes surveys and fact-finding enquiries of different types. The main objective of this type of research is to describe the state of affairs as it exists at present. The main characteristic of this method is that the researcher has no control over the variables; he can only report what has happened or what is going on. In this type of research, all kinds of survey method are utilized including comparative and correlational method.

On the other hand, the researcher had to use facts and information which are available and after collecting these data the researcher analysed and made a critical evaluation of the study variables. The study employed both qualitative and quantitative approaches.

Study Area

Mbarara Centre is one of the towns operated by National Water & Sewerage Corporation. It was gazetted in 1988 after IDA Financed rehabilitation project. It is located along Kampala-Kabale road approximately 260 km from Kampala with Offices at plot 3 Galt road with in Mbarara

Municipality (Opoka, 2014). The Area of operation stretches in the divisions of Kakoba, Kamukuzi, Nyamitanga, Biharwe, Nyakayojo and Kakiika in Mbarara Municipality. However, the researcher chose Kakoba, Kamukuzi, and Nyamitanga divisions because they have continued to register increase in arrears year after year regardless of the existing measures that were put in place to reduce them (Integrated Annual Report 2018).

Study Population

The Unit of analysis of this study was NWSC whereas the Unit of Inquiry were Management and employees of NWSC Mbarara Centre. The study targeted a population of 130 respondents. According to NWSC main payroll (2018), there are 130 employees for Mbarara Centre. These include employees working in the Finance, Administration, Technical, Commercial and Customer Care departments.

These were selected because they were expected to have the necessary information on on-spot billing system, revenue collection mechanism, and cost of water and revenue collection of NWSC-Mbarara Centre. The study also considered the 10 big customers of NWSC who included Pearl Dairy, GBK, Kazire, Nile Breweries, Coca-Cola plant, Mbarara Regional Referral Hospital, Hotel Triangle, Lake View Hotel, Mayanja Hospital and Ntare School. Each was represented by one respondent especially the Accounting officer.

Sample Size Determination

The sample size was determined accordingly using a formula by Yamane (1967).

$$n = \frac{N}{1 + Ne^2} = \frac{130}{1 + 130(0.05^2)} = \frac{130}{1.325} \\ = 98.11320754 \approx 98$$

Using a formula suggested by Kothari (2004), the sample size can be categorised as follows

$$n = \frac{N_{group} * n}{N}$$

Where N_{group} is the size of the strata, n is the sample size of the total population, and N is the total number of participants. For example, for engineering department,

$$n_{engineering} = \frac{52 * 98}{130} = 39.2$$

Data Collection Instruments

Questionnaires

A research questionnaire is a productive survey which is used for accumulating response regarding any particular research work. The questionnaires were developed in harmony with the guidelines specified by (Umar, 2003).

The researcher used a set of self-administered questionnaires intended for in order to collect all the completed responses within a short time since clarity to questions were given on spot to the respondents at NWSC Mbarara Centre. The respective self-administered questionnaires started with a main title, followed by an introductory letter, and had three sections. Section one

consisted of the demographics of respondents, section two was about on-spot billing system, economic and cultural factors that influence revenue collection as the independent variables while section three consisted of items about the revenue collection as the dependent variable. The researcher used a Likert scale questionnaire with a five-point agreement scale which was used to measure respondent's agreement. Questionnaires were administered to employees of NWSC who were randomly selected

Interview Guide

Interviewing was done with the help of an interview guide. The interview guide was used to capture data from key informants on on-spot billing system, other factors (economic and cultural factors) and revenue collection in NWSC Mbarara Centre. The instrument was helpful as it provided an alternative means of getting detailed information and opinions from heads of departments in NWSC Mbarara Centre. While conducting interviews, probing was used in cases where respondents give inadequate answers or where confused meanings are given to the question. The interview guide was used to collect data from key informants who were purposely selected and they included the biggest consumers (companies and hotels) and heads of department in NWSC.

Data Quality Control

The validity and reliability of the study instruments was ensured through the following strategies.

Validity of the Research Instruments

Validity is the accuracy and meaningfulness of inferences, which are based on the research results. Content Validity Index (CVI) was computed in this study to examine the validity of the questionnaire and interview guide. Four research experts were served with the questionnaires and interview guide to get their opinion on the clarity of question wording and meaning. Their feedback was incorporated into the final version of the instruments. The results of the content validity index was calculated as 0.97. The instruments were regarded valid since the computed CVI was above 70% as recommended by (Amin 2005).

$$CVI = \frac{\text{Valid items of the questionnaire}}{\text{Total items of the questionnaire}}$$

Reliability of the Instruments

The researcher assessed the reliability of the questionnaire using data collected from a pilot study. The reliability of the questionnaire was established using the Cronbach Alpha coefficient to ascertain dependability and trustworthiness. The Cronbach alpha provides a coefficient of inter-item correlations, that is, the correlation of each item with the sum of all the other relevant items, and is useful for multi-item scales (Cohen, Manion, & Morrison, 2007). The reliability of the instruments as measured by internal consistency was found to be satisfactory (Cronbach $\alpha = 0.94$). the results of test retest reliability was $r = 0.85, p < 0.001$. The tool was deemed fit for the study since the Cronbach Alpha

coefficient was more than the recommended 70% as provided by (Geroge & Mallery, 2003).

Data Analysis, Presentation, and Interpretation

Quantitative Data Analysis

Data from the questionnaires was edited and coded. Thereafter, the coded data was entered in a computer software known as SPSS version 23. Data was then analysed using descriptive statistics such as mean, and standard deviation. Descriptive statistics were used to provide a better understanding of the data. Also, inferential statistics such as correlation was used to determine the relationships between the variables. Results of the analysis are presented in tables.

Qualitative Data Analysis

The qualitative data collected through interviews was categorized, cleaned, interpreted, and analysed under their respective themes which were drawn from the study objectives. This was used to triangulate and support findings obtained through quantitative data analysis.

Research Results

Response Rate

As shown in Table 6 below, out of 98 questionnaires that were administered amongst randomly selected participants, 98 (100%) were collected. This is because the researcher administered the questionnaires himself.

The participants were asked to fill the questionnaire there and then since it would take them less than 30 minutes of their time. According to Amin, (1970) a response rate of 75% is recommended as the results can be relied on. Thus the researcher had to proceed with the data analysis.

Table 1: Descriptive statistics of Cost of Water and Revenue Collection Performance

Statement	N	Mean	Std. Deviation	Std. Error Mean
When clients relocate to other estates, they don't pay water bills.	98	4.3571	0.48162	0.04865
Lack of funds makes customers delay paying the water bills.	98	4.2449	0.43224	0.04366
The water suppliers do not allow for negotiation to paying water.	98	4.0306	0.58246	0.05884
Defaulting Customers who default on payments are disqualified from services.	98	3.9388	0.60609	0.06122
Customers who find the price of water is not affordable.	98	3.6837	1.00100	0.10112
The unreliability of Water supply deters customers' willingness to pay promptly.	98	3.5408	1.00687	0.10171
Pricing Tariffs are not friendly and this influence the ability to pay water.	98	3.7353	1.14445	0.10338

Source: Primary data, 2019

Results in Table 6 show that a mean of 3.68 with a standard deviation of 1.001 in responses obtained regarding the view that the price of water is not affordable which affects my ability to pay for water. This implies that

majority of the respondents agreed with the statement since the mean is closer to 4. The finding therefore implies that some people still view the price of water as not affordable which affects their ability to pay for water.

Further results in Table 6 show that respondents were in agreement with the view that Pricing Tariffs are not friendly and this influence my ability to pay water. This attracted a mean of 3.73 and a standard deviation of 1.144. This findings show that due to pricing tariffs not being friendly, influenced people's ability to pay water.

The study findings in Table 6 show that a mean of 4.03 was obtained regarding the view that the water suppliers do not allow for negotiation to paying water. This attracted a standard deviation score of 0.582. This shows that most respondents agreed with the statement and hence indicate that the fact that the water suppliers do not allow for negotiation to paying water, has hindered some people from accessing water.

Table 6 results of the study show that Customers who default on payments are dissatisfied with the services they receive and this attracted a mean response of 3.98 was obtained in regard to this statement and there was a standard deviation of 0.606 obtained regarding the statement and as such it was agreed that Customers who default on payments are dissatisfied with the services they receive. Better services thus implied less default in clients in Mbarara.

Furthermore in Table 6, respondents provided their views on Lack of funds making customers delay paying the water bills. Their perceptions showed a mean of 4.24 implying that they agreed with the statement. In addition, a standard deviation of 0.432 was obtained suggesting that

there were no significant differences/variances in opinions. The findings revealed generally that Lack of funds makes customers delay paying the water bills.

The study findings in Table 6 show that a mean of 3.54 indicates that the unreliability of Water supply deters customers' willingness to pay promptly. This attracted a standard deviation score of 1.006. This shows that most respondents agreed with the statement and hence indicate that the fact that the unreliability of Water supply deters customers' willingness to pay promptly, has hindered some people from accessing water.

The study findings in Table 6 show that a mean of 4.35 was obtained regarding the view that when clients relocate to other estates, they don't pay water bills. This attracted a standard deviation score of 0.048. This shows that most respondents agreed with the statement and hence indicated that the fact that when clients relocate to other estates, they don't pay water bills.

In an interview with one of the respondents, he asserted that:

“..... the cost of a unit of water has increased and yet the number of litres in a unit has remained constant. For me who uses water as a raw material, it has reduced my profits since the cost of production has gone high thus making it hard for me to pay my water bills promptly like I used to do when the unit cost was down.....”

This is in agreement with the findings of Boakye & Nyieku (2017) who found out that the cost of water was a challenge in revenue collection performance.

The Contribution of Revenue Collection Mechanism on Revenue Collection Performance

The second objective aimed at examining the contribution of revenue collection mechanism on revenue collection performance in NWSC, Mbarara Centre. The findings of the descriptive statistics are presented in

Table 2

Table 2: Descriptive statistics of Revenue Collection Mechanism on Revenue Collection Performance

	N	Mean	Std. Deviation	Std. Error Mean
The location of pay points are easily accessible which makes paying water bills promptly.	98	3.7245	1.00289	0.10131
The automation of revenue collection increases clients' chances of paying for water promptly.	98	4.0482	1.14821	0.06295
There are insufficient numbers of pay points which discourage clients from paying bills.	98	2.6020	1.24966	0.12623

There is ineffective mode of Paying bills which discourages me from paying water promptly.	98	3.731	1.162701	0.14718
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Source: Primary data, 2019

In Table 7, respondents provided their views on the assertion about existence of insufficient Number of Pay Points which discourage clients from paying bills and a mean of 2.60 was obtained, showing that they disagreed with the statement. Additionally, a standard deviation of 1.249 was obtained suggesting that there were no significant differences/variances in opinions as regards existence of insufficient Number of Pay Points which discourage clients from paying bills.

More so, findings showed that majority of the respondents agreed with the assertion that the failure to automate revenue collection reduces clients' chances of paying for water promptly. This was indicated by a mean response of 4.04, although there was a high standard deviation score of 1.148. This indicated a high level of inconsistency in the opinions raised by respondents during the study. From these scores, it was established that the failure to automate revenue Collection reduces clients' chances of paying for water promptly.

Results of the study in Table 7 show that a mean value of 3.72 was obtained regarding the assertion that most of the respondents agreed to the view that The Location of pay points are not easily accessible which make me not paying water bills promptly. It was also established that most of the respondents were consistent in their opinions as shown by a greater standard deviation figure of 1.002. Generally, the study conferred to the fact

that more location of pay points and establishment of many more could easily increase accessibility which makes people to pay water bills promptly.

In a discussion with one of the key informants, she said that,

“.....the revenue collection mechanism is becoming costly. We used to pay our water bills at the NWSC offices without any charge, but now all the methods of payment include some charges and which keeps on increasing every financial year for example the mobile money payment has also been increased and going to the bank needs time.....”

This concurs with the findings of Oracle (2009) who concluded that in order to improve the revenue collection performance, there is need to have a fair mode of paying bills.

The Relationship Between On Spot Billing System and Revenue Collection Performance

The third objective aimed at finding out the relationship between on spot billing system and revenue collection performance in NWSC, Mbarara Centre. The findings presented in Table 3 below indicate the descriptive statistics of on-spot billing system and revenue collection performance. These indicate that participants agreed (Mean = 4.5612 and standard deviation = .49879) that NWSC today fail to accurately bill for every unit of water produced.

In addition, the participants agreed (Mean = 4.4490, standard deviation = 0.49995) that on-spot billing system makes customers trust the accuracy of the bills, and are

therefore more willing to paying them. Maintaining up-to-date customer databases improves revenue collection as indicated by mean of 4.3469 and standard deviation of 0.47844.

Table 3: Descriptive statistics of On-spot billing system and Revenue Collection Performance

	N	Mean	Std. Deviation	Std. Error Mean
NWSC today fail to accurately bill for every unit of water produced.	98	4.5612	0.49879	0.05039
On spot billing system makes customers trust the accuracy of the bills, and are therefore more willing to paying them.	98	4.4490	0.49995	0.05050
Maintaining up-to-date customer databases improves Revenue collection efficiency in NWSC.	98	4.3469	0.47844	0.04833
For metered supplies the bills are always accurately raised according to meter readings.	98	4.3265	0.47135	0.04761

Billing systems based on consumption are more likely to be paid by individual users.	98	4.1429	1.26001	0.12728
Customers who default on payments are dissatisfied with the services they receive.	98	4.1020	0.56513	0.05709
The current method of delivering water bills to customers is good and should be maintained.	98	4.0918	0.74732	0.07549
Poor billing and collection practices prevent water utilities from recovering sufficient costs to properly operate	98	4.0714	0.25886	0.02615
Bills raised by NWSC staff are clear, simple and understandable to most customers.	98	3.6735	1.24168	0.12543

Source: Primary data, 2019

Results of the study in Table 9 below show that on spot billing was highly related with revenue collection performance. A significant positive Pearson correlation ($r = .864$, $p < .05$). Poor billing and collection practices significantly prevent water utilities from recovering sufficient costs to properly operate and therefore on-spot billing system makes customers trust the accuracy of the

bills, and therefore more willing to paying them. Therefore, there is a significant relationship between on-spot billing system and revenue collection performance of NWSC Mbarara Centre as indicated by $r = 0.864$, $p < 0.05$.

Table 4: Correlation between on spot billing system and revenue collection performance

		On-spot billing system	Revenue collection performance
On-spot billing system	Pearson Correlation	1	0.864**
	Sig. (2-tailed)		0.000
	N	98	98
Revenue collection performance	Pearson Correlation	0.864**	1
	Sig. (2-tailed)	0.000	
	N	98	98

** . Correlation is significant at the 0.01 level (2-tailed).

In an interview with one of the respondents, she clearly asserted that:

“.....on spot billing is a very good method because it the reduced on the operating costs. Previously we would pay for someone going to take the meter readings, then we again pay the person taking the bills. More so our clients

have now built trust in us because they always bill them when they are seeing. This has increased our revenue collection performance.....” This is in agreement with the works of Sualihu & Rahman (2014) who found out that on spot billing reduces the operating costs hence increasing performance.

Conclusions

NWSC is plagued with severe deficiencies in the delivery of services, with access to reliable, sustainable, and affordable water supply and sanitation services remaining poor in general. The sector’s worrying performance is caused, among other reasons, by financial and capacity constraints, including the absence of a commercial orientation to services, institutional deficiencies, and the lack of systemic incentives to deliver ongoing quality services.

Effective billing and Revenue collection systems are a critical component for ensuring the viability of NWSC. Improving billing and revenue collection activities has an immediate impact on the revenue streams of NWSC that can, in turn, help NWSC in improving services. The price of water is not yet affordable and affects customers’ ability to pay for water and customers are not engaged in negotiations to paying water and planning and most of the customers’ delay to pay their water bills mainly lack funds while others fail to pay because they are not satisfied with the services and this greatly affects revenue collection performance.

Recommendations

The study found out that the cost of water is high thus not affordable especially to low income earners. Therefore, the study recommends that government should set minimum price and tariffs to enable people afford water since it is a necessity.

The findings recommend that to achieve proper reduction in revenue collection costs, NWSC needs to install prepaid meters under prepaid billing system. Prepaid water meter is used to improve the operational efficiency as there is no need of men for meter reading. The study findings revealed that there are a lot of unpaid bills due to clients who relocate from estate to estate. The study recommends that clearing bills should be shifted to the landlords instead of tenants since landlords do not easily relocate.

The study findings revealed that the customers are not allowed to negotiate for the units of water they use. The study recommends that customers should be assessed thoroughly to gauge whether they will be able to pay the bills.

NWSC should cluster its customers according to income classes and ensure that middle level class customer who can afford to pay for average consumption are put under prepaid billing system. On the hand, high class people who own equipment that consume a lot of water should be left with credit meters to continue enjoying water for they pay without much cost and putting prepaid meter to them may have the same effect of self-disconnection like the low class people.

The study findings indicate that there are various modes of payment such as bank payment, mobile money,

and payway. The study recommends that the customers should be trained and sensitised on how to use the new and existing payment platforms that NWSC. This would enable customers to be able to pay their bills promptly.

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CLIMATE SMART AGRICULTURE
A COMPREHENSIVE SCOPING AND
ASSESSMENT STUDY WITH PARTICULAR
REFERENCE TO UGANDA**

David. S.O Osiru
Professor of Agronomy
Department of Agriculture
Bishop Stuart University**

**** The paper is based on the study carried out by the author for
FAO (Food and Agriculture Organization) and FANRPAN
(Food, Agriculture and Natural Resources Policy Analysis
Network) as a Consultant**

1.0 Introduction

Based on the projection on population growth and food consumption pattern in developing countries, there is likely to be a deficit in the food production by the year 2050. Africa's population has just passed 1 billion and it is expected to double by the year 2050 (FAO 2012) According to FAO, Sub Saharan Africa, Uganda inclusive, is the region that has the highest proportion of poor and undernourished people in Africa (FAO,2011a). Agricultural production will, therefore have to increase by at least 70% in order to ensure that the food demands are met.

Meeting the food demands of a growing population is already a formidable task for agricultural sector of many developing nations like Uganda but this will be further exacerbated by climate change. Largely due to climate change, agricultural productivity is likely to decrease. Similarly, the stability of production and incomes are likely to change. This trend may be even worse in countries which are already experiencing food insecurity (FAO 2012)

The important implication of this is that for Uganda, policy makers will be faced with an even greater challenge to ensure that agriculture contributes more in addressing food security issues, development and climate change (adaptation and mitigation). In other words, agriculture in Uganda must undergo major and significant transformation in order to address the challenges likely to be faced in achieving food security and responding to climate change. Put in another way, in order to stabilize output and income, production systems must become more resilient or more capable of performing well in the face of disruptive events. This requires transformation in the management of natural resources and higher efficiency in the use of these resources and inputs for production.

According to FAO, approaches that seek to maximize the benefits and minimize the trade-offs across the multiple objectives, often associated with agricultural sector, require more integrated and coordinated planning, policies and institutional arrangements as well as financing and investments. Such approaches and related enabling requirements are referred to by FAO as climate smart agriculture. Climate Smart Agriculture (CSA) is

thus a way to ensure the achievements of future food security under climate change. CSA encompasses sustainable agriculture and it includes the need for adaptation and the potential for mitigation with associated technical, policy and financing implications.

This scoping study attempts to review and examine the current production practices as it relates to CSA in Uganda. The study also seeks to conduct comprehensive reviews of the existing policies, analyze gaps and identify relevant policy recommendations.

2.0 Methodology

The study was carried out using two approaches. These includes (i) review of available literature both local and international and reports related to climate change. All relevant information from Makerere University Centre for Climate Change Research and Innovation (MUCCCRI), Institute of Environment at Makerere University, Climate Change Unit in the Ministry of Water and Environment and Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) were consulted and where necessary utilized. (ii) Interviews were conducted either face to face or on phone with selected persons consisting of:

- (a) Scientists and researchers involved in Climate Change.
- (b) Environmentalist
- (c) Extension workers and administrators
- (d) Farmers.

3.0 Farming Systems and CSA technologies and practices

3.1 Importance of agriculture

Agriculture has been and continues to be the most important sector in Uganda's economy. It employs about 65.6% of the population aged 10 years and older (UBOS, 2010). In 2010/11, the sector accounted for 22.5 percent of total GDP (MAAIF 2011). Agricultural exports accounted for 46 percent of total exports in 2010 (MAAIF 2011). The sector is also the basis for much of the industrial activity in the country since most industries are agro-based. Even though its share in total GDP has been declining, agriculture remains important because it provides the basis for growth in other sectors such as manufacturing and services. It is also the sector that provides equal opportunities for employment for both men and women in Uganda.

In its Development Strategy and Investment Plan (DSIP), 2010/11-2014/15, Ministry of Agriculture, Animal Industry and Fisheries(MAAIF) has emphasized the renewed recognition of the fundamental importance of agriculture in the Uganda's Economy and the central role it plays in development, economic growth and poverty reduction. In line with this recognition, there is also the Maputo Declaration on the Comprehensive Africa Agriculture Development Program (CAADP).

In CAADP, Uganda has committed itself to three things; firstly to the principle of agriculture-led growth as a main strategy; secondly, to the pursuit of a 6% average annual growth rate for the agricultural sector and thirdly

to increase the share of the national budget allocated to agricultural sector to reach the eventual target of 10%. (MAAIF/DSIP 2011-2015). Therefore, at least for the foreseeable future, agriculture will continue to be one of the most important sectors in Uganda's economy.

3.2 Current Production Practice



Plate 1: Typical Farming activity in Uganda showing Inter-row cultivation using Ox-plough

The majority of people in Uganda depend on Agriculture for their sustenance and livelihoods. The major farming systems are largely determined by the rainfall pattern (total amount and distribution per year). Farming systems cover a wide range of activities including the production

of traditional cash crops (Coffee, Sugar cane, cotton and tea) and food crops (banana, cassava, maize, sorghum, finger-millet, potatoes and beans) and keeping livestock (cattle, goats, pigs and poultry). Typically, farm operations are by conventional tillage which involves land clearing, 1st and 2nd ploughing and finally disc ploughing using a wide range of implements, though the majority of farmers often use ox plough or the hand hoe (Plate 1 above).

However, over the years farmers have badly managed their land largely through the use of conventional tillage leading to severe degradation of their farm land. Consequently, average yields are low. The national situation indicates that land and land resources degradation accounts for over 80% of the annual cost of environmental degradation (Slade and Weitz, 1991). Wide spread forest clearing, continuous cultivation, crop residue burning and overgrazing have exposed land to agents of degradation thus raising serious concern about conventional tillage (Plate 2 below).

Plate 2: Typical example of burning of crop residues during land preparations. 2a: Burning crop residues after crop harvest and before ploughing. The whole field is set on fire during land clearing. 2b: Burning crop residues after crop harvest. The residues are collected together and set on fire. Both practices are destructive often leaves the land bare and prone to soil erosion.

The main disadvantages of conventional tillage is that it destroys soil structure and creates compact layers below the surface of the soil often called plough pans leading to reduced development of plant roots system.



Plate 2a



Plate 2b

Land degradation is also evident in the dry lands of the cattle corridor of Uganda where land management is threatened by overgrazing by local and mobile pastoralist herds, deforestation by excessive use of fuel wood

resources and poor and inappropriate agricultural practice on marginal land. CSA offers farmers a wide range of benefits including increased productivity, better management of resource base and reduction of Green House Gas (GHG).

A large component of CSA in Uganda involves Conservation Agriculture (CA) which includes minimum tillage, permanent soil cover, crop rotation and agro-forestry practices. The aim is to manage agro-ecosystems for improved and sustainable productivity, increased profits and food security while preserving and enhancing the resource base and environments including adaptation to climate change.

Based on this, the general principles of CSA are fairly well known to most agricultural scientists and institutions in Uganda though the larger proportion of the farming community is largely ignorant of CSA related principles. Thus actual practice has been minimal in most parts of the country. Surprisingly even the major Government Agencies like the National Agricultural and Advisory Services (NAADS) and Non-Governmental Organizations (NGOs) have rarely emphasized CSA in the major farming systems.

4.0 Conventional tillage

Definition of Tillage. – The act of disturbing the soil with implements powered manually, by animals or tractors. Other names of tillage include ploughing, cultivation and digging (largely using the hand hoe).

Tillage forms an important part of Agricultural production. In Uganda, a typical conventional tillage comprises land clearing, 1st and 2nd ploughing and finally

disc harrowing (process of breaking big lumps of soil into fine tilth). Plant residues are usually burnt before ploughing.

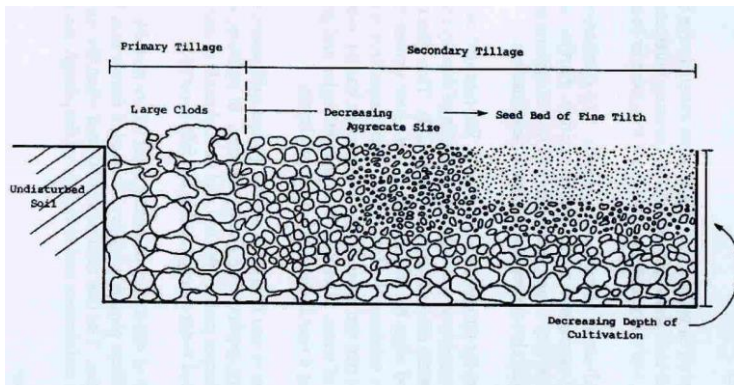


Plate 3: Standard practice in conventional tillage. Secondary tillage leads to breakdown of soil aggregates and clogging of soil pores.

However, although conventional tillage has been practiced for ages, it has numerous disadvantages. The practice leads to breakdown of soil aggregates and clogging of soil pores (Plate 3).

In Uganda, over cultivation and burning of crop residues leaves the soil bare and prone to soil erosion (Plates 2 and 4).

Conventional Tillage also breaks down soil aggregates, leading to clogging of soil pores and reduced infiltration of water (Plate 3). The ultimate effect is increased surface run-off, and loss of soils and nutrients through soil erosion. The extent of soil loss can be visualized from Fig. 1 which compares the relative loss of soil from bare surface and other management practice.

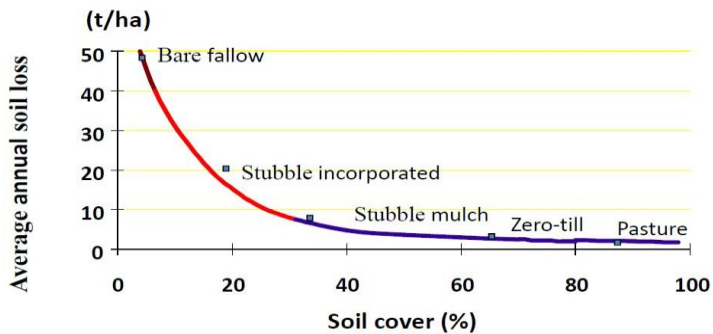


Figure 1: The influence of wheat stubble (mulch) on soil loss.

5.0 Climate Smart Agriculture

5a. Definition: Climate Smart Agriculture (CSA) is an agricultural system that sustainably increases productivity, resilience (adaption), reduces/removes greenhouse gases (mitigation) and enhances achievement of national food security and development goals. It promotes agricultural best practices particularly integrated crop management, Conservation Agriculture, use of improved seeds and fertilizer management practices. It is an approach that ensures proper management of agro-ecosystems for improved and sustainable productivity, increased profits and increased food security while at the same time preserving and enhancing the resource base environmental protection ensure minimum damage to the environment.

5b. Selected Climate Smart Agriculture Related Practices

Typical soil conservation measures in Uganda include: terracing, strip and contour cultivation, ridge and tie ridging practices. These practices are commonly used on the hilly terrain particularly in Kabale Districts and the slopes of Mt Elgon in Western and Eastern Uganda respectively.

Annual crops are planted on the flat area and tree species are planted on the edge of the terrace (Fig. 2). Many of these practices were introduced by the colonial Governments but have since been largely abandoned. In some cases farmers are already destroying the terraces in a bid to expand their cultivation areas and this has led to disastrous effects of soil erosion.

The main reason is the increasing pressure on the land as a result of increased population density. In addition, the majority of the smallholder farmers have inadequate knowledge of improved farming practice and lack awareness of land degradation problems.

Increasingly, farmers continue to cultivate on steep hill slopes and river banks (Plate 5), often without soil conservation measures in place. Part of the reason is that bye-Laws are poorly enforced due to inadequate and poorly facilitated extension staff in the country. There is therefore need to facilitate extension staff and improve their services.



Plate 4a above: Recently ploughed field showing excessive tillage (pulverized soils) giving rise to very fine tilth prone to being washed away after heavy rains. Plate 4b: Bare soil typical of conventional tillage showing evidence of soil erosion.

Plate 4b below: The problem begins as sheet erosion which eventually builds up into galleys.



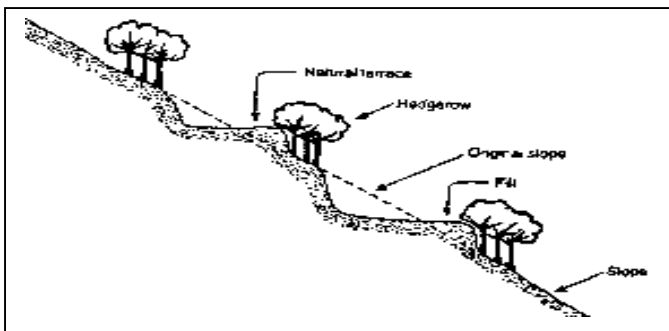


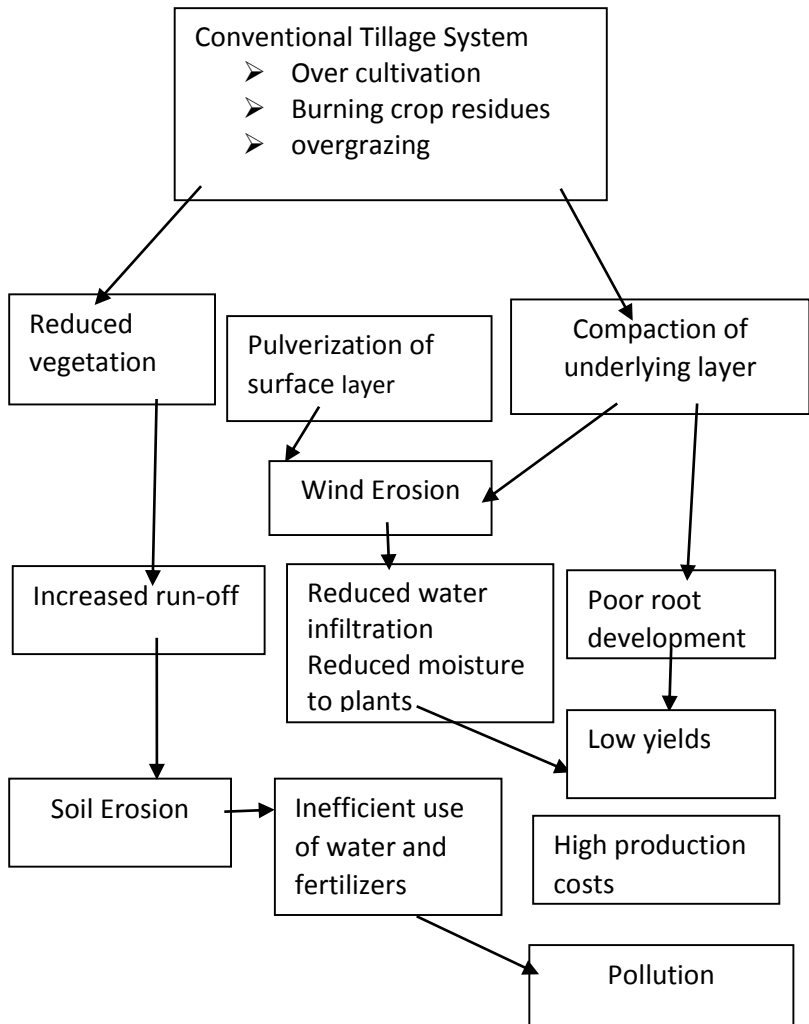
Figure 2: Typical example of Terrace. Annual crops are planted on the flat area and tree species are planted on the edge of the terrace.

Plate 5: Cultivation on River Banks at Manafwa River



There is also need to review and strengthen the soil conservation measures including terracing, contour and strip cultivation, ridge and tie ridging practice. Farmers should be sensitized on the dangers of cultivating on river banks. Cultivation should begin at least 20m from the river as required by the National Environment Management Authority (NEMA) regulations.

Fig. 3: Summary of the major disadvantages/consequences of conventional tillage



6. Climate Smart Agriculture Related Principles

There are essentially four principles of CSA related Practices and these are:

- a. Minimum soil disturbance/No tillage or minimum tillage.
- b. Permanent soil cover, especially by crop residues (mulch) and cover crops.
- c. Crop rotation.
- d. Multiple cropping/Intercropping/Agroforestry.

These are briefly outlined below:

(a) Minimum soil disturbance or No-Tillage

This is sometimes referred to as Zero-Tillage or minimum Tillage. It means growing crops without mechanical seedbed preparation or with minimum soil disturbance. The objective is to reduce run off and soil erosion. It can be achieved by reducing cultivation and maintaining soil surface cover. In general, it consists of the following procedures or practices.

Direct seeding through crop residues in which seeds are planted directly into the field covered with crop residues. (See Plate 6a).

(Plate 6a).Minimum tillage or zero tillage in which the ground is not ploughed except where the seed is to be planted. (Plate 5b)



Minimum tillage or zero tillage in which the ground is not ploughed except where the seed is to be planted. (Plate 6b)



Plate 6a: Example of Minimum Tillage involving direct seeding through crop residues (Courtesy of REDS LTD). The residues protect the soil from the impact of rain drops and reduce run off. It also improves infiltration

of moisture into the soil. Plate 5b: Example of minimum tillage or zero tillage.

Minimum tillage or zero-tillage has numerous advantages over conventional tillage and these include: Minimum destruction of soil structure by avoiding pulverization, compaction and plough pan development.

The impact of rain drops is cushioned and consequently surface sealing is reduced. Under the conventional tillage high energy rain drops dislodge soil particles which are then carried away in runoff water. Over 100 tons/ha of top soil can be carried away, from exposed soil.

There is slower and better mineralization of soil organic matter through less exposure to climatic agents and soil micro and macro-fauna. There is also reduced evaporations. This together with increased infiltration allows maximum utilization of rainfall.

Crusting and compaction are reduced thus resulting into better seedling emergence. Better infiltration and circulation of air and water through the soil profile largely by maintaining bio-pores and vegetative cover and thus ensuring optimal rooting.

(b) Maintenance of permanent soil cover or crop residues (mulch)

A soil cover is extremely important in protecting the soil against the impact of rain and direct sun. It also provides the micro and macro organisms in the soil with constant supply of food. It alters the microclimate in the soil for optimal growth and development of soil organisms including plant roots. (Plate 5 and 6)



Plate 7: Maintenance of soil cover or crop residues in Banana Plantation to ensure reduced impact of rain drops and reduced soil erosion.

Surface crop residues or mulch is also important in soil and water conservation. It reduces wind and water erosion by maintaining soil cover. Additionally, mulch reduces the amount of weeds by choking the established weeds and denying light to those that require it for germination. In Climate Smart Agriculture, crop residues play a major role in soil quality improvement, erosion control, nutrient recycling, carbon sequestration and improving soil structure and soil tilth. Residues also provides better conditions for root development and seedling growth and Mitigates temperature variation on and in the soil. Bare soils can, reach temperatures of 55 – 60°C which leads to death of seedlings. Mulching, therefore, provides resilience for the system.

C) Crop Rotation

Rotation of crops is the practice of growing different crops in succession on the same piece of land. The aim is to preserve the productive capacity of the soil. Selection of suitable crops for rotation should ensure that the component crops establish their roots at different layers of the soil. This makes them capable of exploring the different soil layers for nutrients and moisture. Nutrients that have been leached to deeper layers and that are no longer available for the crop, can be recycled by the deep rooted crops in a rotation. In this way the components of crop rotation function as biological pumps.

Furthermore, a diversity of crops in rotation leads to a diverse soil flora and fauna, as the roots excrete different organic substances that attract different types of bacteria and fungi, which in turn, play an important role in the transformation of these substances into plant available nutrients. Integrating leguminous plants into the rotation provides the added advantage of fixing nitrogen and improving the nitrogen levels in the soil. (Plate 6).

The transformation of these substances into plant available nutrients. Integrating leguminous plants into the rotation provides the added advantage of fixing nitrogen and improving the nitrogen levels in the soil. (Plate 7).



Plate 7: Typical example of crop rotation

This typically involves cereal crop (maize), root crop (Cassava/Sweet potato) Grain legumes (Groundnuts and soybean). Proper rotation plays an important role in nutrient recycling and improving nutrient availability in the system. In general, the main advantages of crop rotation include:

- The restoration and maintenance of soil fertility thereby improving crop production over the long term.
- The reduction of risks from pest, disease and weed infestations
- Greater distribution of channels or biopores created by diverse root types (which vary in forms, size and depths of rooting)
- Better distribution of water and nutrients through the soil profile. This gives rise to improved exploration of nutrients and water of the whole soil profile by roots of many different plant species resulting in an optimal use of the available nutrients and water.
- Increased nitrogen fixation where leguminous plants are integrated in the rotation and improved balance of NPK from both organic and mineral sources.
- Crop rotation improves humus formation and enhances soil organic matter content.

The success of crop rotation depends on:

- (i) Proper design and implementation of crop rotations according to the various objectives:

These may include improved food and fodder production, residue production, pests and weed control and nutrient uptake.

- (ii) Use of appropriate/improved seeds for high yields as well as the production of above-ground and below ground plant residues.

(D) Multiple Cropping

Multiple cropping are forms of cropping systems where total production per unit area is often achieved through growing crops in sequence, simultaneously or together. These are important in CA. And they also ensure ground cover most of the year. They may be:

(i) Sequential cropping

This is a system which involves planting sole or pure stands of crops in sequence in the same field. The succeeding crop is planted immediately after harvesting the previous crop. Depending on the number of crops grown in sequence in a season, we may have double cropping i.e. growing two crops per season or Triple cropping in which three crops are grown in sequence per season. The succeeding crop may be planted after the first crop has reached reproductive stage. This cropping system is often called Relay cropping. The advantage in either case is that ground cover is maintained over a longer period and the straw/stovers from previous crop provides mulch for the subsequent crop.

(ii) Mixed cropping and intercropping

This is the cropping system that involves growing a combination of two or more crops simultaneously on same piece of land. Production is therefore intensified both in space and time. The benefits are:

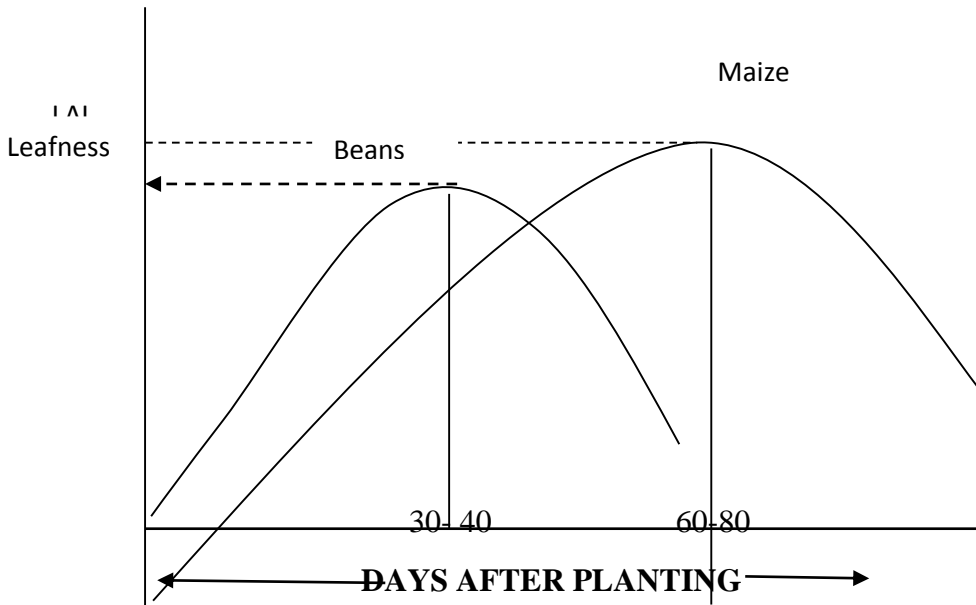
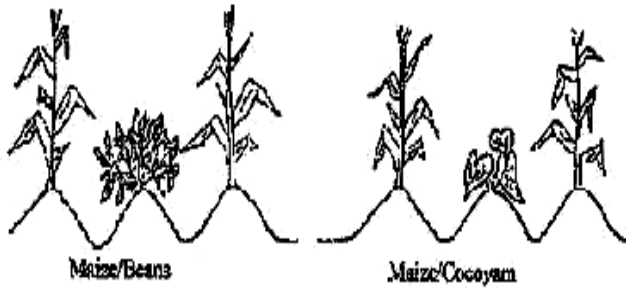
- More total yield per unit area of land
- Reduction in the chances of crop failure
- Protection of the soil from erosion.

Mixed cropping has no distinct arrangement of the component spp. and it is closely associated with the traditional broadcasting method found in many peasant farms in Uganda. (Plate 8)



Plate 8: Typical example of mixed cropping showing maize and beans growing together with no definite arrangement of the component crops.

Intercropping on the other hand is growing a combination of two or more crops together but at least one of them is planted in rows.



In both mixed cropping and intercropping, selection of the component species is based on the fact that they have different growth cycles and their growth requirements also differ. Common combinations often include early maturing component (Beans) and a late maturity one (Maize). Such combinations offer ground cover for longer periods and ensure minimum impact of rains on the soil (Fig. 3). This is because their peak Leaf Area Indices occur at different times. The advantages include:

Higher diversity in crop production and consequently in human and livestock nutrition.

Improved protection of the soil through prolonged soil cover and reduced risk of pest and disease infestation.

Other advantages include:

- Greater recycling of nutrients particularly where combinations of deep rooted (Pigeon peas) and shallow rooted spp (Finger millet) are grown.
- Roots of the different component spp explore different layers of the soil profile thus ensuring optimal utilization of Nutrients and moisture.
- Because of the different growth cycles of the component spp. ground cover is provided for longer periods leading to less effects of rain on the soils. (Fig. 3)

7. Selected case studies of Climate Smart Agriculture in Uganda

The history of mitigation and soil conservation measures in Uganda is a long one particularly in the South Western Uganda. The Natural resources of Kagera River Basin, for

example, have been facing increasing pressure and degradation for decades. Worse still, farming systems in the catchment area have remained largely traditional. The inappropriate use of arable land including excessive cultivation, baring of soil through grazing or removal of crop residues have put considerable pressure on the land. Generally arable land is left bare for extended periods and thus exposing the soil to agents of erosion.

Traditional Agricultural Extension Approach has largely failed because it is characterized by “top down” transfer of knowledge and heavy dependence on “demonstration plots” which are largely managed by outsiders. This is a situation in which improved modern farming methods are demonstrated on small plots so that the farmers can see and learn. The problem is that many of these are set up and managed by extension staff with little participation by the farmers.

Largely for this reason, the approach has failed. The TAMP (Transboundary Agroecosystem Management Program), an FAO funded project in Kagera river Basin, has adopted Farmer Field School (FFS) approach. FFS comes from the Indonesian Expression “Sekolar Lapangan” meaning “Field School”,(Okoth et. al. 2010). The name reflects the three educational goals of FFS which are (i) learning takes place in the field (ii) Field conditions define most of the curriculum and (iii) real field problems are observed and analyzed from planting to harvesting.

FFS bring together concepts and methods from agroecology, experiential education and community development. At FFS, a group of farmers come together

with common interest or issues which they wish to learn about and find solutions.

The TAMP project aims at combating land degradation through the use of Climate Smart Agriculture related practices and ensuring sustainable land productivity. Through the FFS approach, the farmers have been able to clearly identify the problems and priorities and how they can attempt to provide solutions. As can be seen from selected sites, the farmers have been able to integrate the different principles and practice of CSA to ensure improved productivity and minimum soil loss. The farmers are greatly motivated apparently because, for decades, they have witnessed their soils being washed down into Kagera River and now they see real possibility of reducing this loss. But perhaps more importantly, because they are able to achieve better yields from their crops. FFS has enabled them to build confidence not only in the practice of CSA but also among themselves. Below is a description of selected sites where farmers have successfully adopted CSA related principles.

i. Katongelo Watershed Management - Kyobe

The site is very steep and stony and appears to be extremely difficult to manage (plate 9). Despite this, however, the farmers have recognized the importance of ensuring sustainable management of their resources and improve productivity of the four major crops – Coffee, Bananas, Cassava and Sweet potatoes (*Ipomea batatas*). Other crops include beans and groundnuts. The project provides only coffee seedlings. Farmers obtain other planting materials from previous crops or from other

farmers. They work in groups and meet regularly to identify the problems (which varies from farm to farm) and help one another to ensure that a given task is performed.



Plate 9: Showing meandering Kagera River and part of the stony terrain typical of the catchment area

CSA management is based on the integration of different principles including use of mulch in banana and coffee, use of trenches to prevent run off and harvest water and the use of various combinations of intercropping which include Coffee/Banana, to ensure good ground cover (plate 10). Perhaps the most innovative practice is the use of stones arranged in rows roughly 3 m apart across the steep slopes in the coffee fields. These are reinforced with grass bands or strips (plate 11).

The combination of mulches and stone rows/strips, ensure improved infiltration of water and minimum run off. Maize straws are used as mulch. Apparently there is serious shortage of mulching materials as the farmers depend only on banana leaves and maize straws. The

available grass spp (not identified) appear to cause problem where they are used for mulching because they decompose slowly and consequently lock up nutrients. Because of the difficult terrain and stony ground, the hand hoe breaks easily thus slowing farming activity.



Plate 10: Typical intercropping of Coffee and Banana in Katongelo water shed management. Coffee and Banana leaves provide mulch for ground cover.



Plate 11: The use of stones to stop run off. Rows of stones are arranged 3 -4 metres apart in the coffee field. Maize straws are used as mulch to ensure minimum run off.

ii) Sanga – Kiruhura Watershed Management

Sanga – Kiruhura is an area where the management of natural resource is clearly at advanced level. The reasons are not clear but the farmers are definitely motivated. It is a good example of where the principles of CSA are very well integrated to ensure minimum soil loss and improved productivity. Nearly all the Banana plantations are very well mulched and there are various combinations of intercropping including banana/coffee, maize/cabbages; calliandra trees spp with cabbages. Many farmers grow crops and keep cattle.



Plate 12: Rhodes grass (*Chloris gayana*)
one of the pastures spp used in rotation in
a farm in Sanga -Kiriura

Such farmers have well organized paddocks and well established pastures e.g. Rhodes grass (*Chloris gayana*) and lablab (*Lablab purpureus*) (Plate 12 and Plate 13). Lablab or sometimes called dolicos beans is a species of beans in the family fabaceae and cultivated in many countries in the tropics for food or forage. In the case of Sanga, farmers produce lablab as a forage but in addition, lablab provides live mulch and improve soil organic matter. On steep hills, many farmers have planted trees

(largely pines). Because of the effective integration of the key principles of CSA, soil erosion is largely under control and the land appears to be very productive as evidenced by the large bunches of Banana. The wide spread practice of mulching is an indication that farmers are well aware of the benefits. There are attempts to heal the land from gulleys. Land with gulleys are being reclaimed by planting perennial crops like sugar cane and building cross ridges to check the speed of water.



Plate 13: Lab lab (lab lab purpureus) another pasture spp used in the rotation.

iii. Rubangano Watershed management – Mwizi

The terrain of the area is extremely hilly but the land appears to be generally fertile. Like the other areas, the Farmer Field School approach has considerably improved the farmers understanding of the problems associated with farming in this area. The farmers appear to be very motivated and well organized. They organize regular meetings to discuss progress and identify new problems and solutions.

The main crops grown are bananas and coffee. Other crops include sweet potatoes, maize, beans and cabbages. Because farming is largely on the steep hill slopes, farmers have welcomed the concept of CSA. The main practice include planting grass strips (plate 15), terracing, and making trenches in combination with grass strips, (plate 14). Elephant grass from the strips are cut and carried to be used to feed animals (goats) whose dropping are collected and used in the preparation of manure.

The trenches are about 60 cm wide and 60 cm deep across the slope. The soils are typically put on the upper side of the trench (referred to as Fanya juu). These are reinforced by planting grass bands on the side where soils are heaped. Fanya juus prevent the soil being washed down the slope when it rains and also increase infiltration. Mulching of banana is a universal practice. Other CSA related practices include planting trees and manure preparation. Manure is prepared in large trenches called ‘Orusaniya’ or large plates which feed at least four stools of bananas.



Plate 14:
Showing strips of Elephant grass below sweet potato field.
This is one of the conservation practice being used
in Rubangano Watershed Management at Mwizi.

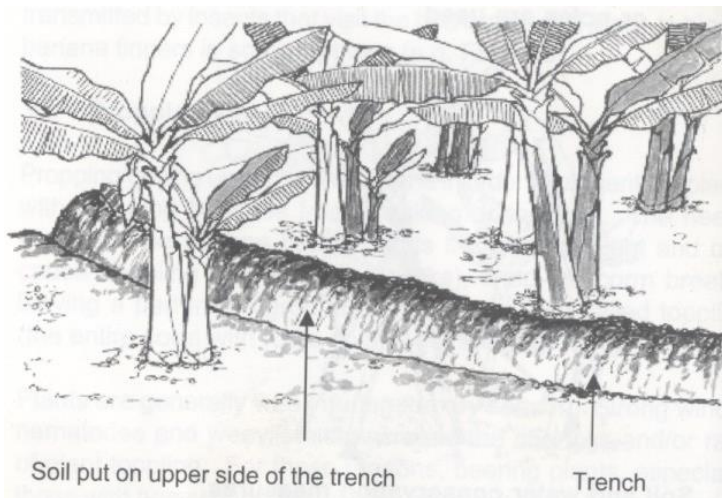


Plate 15 above and below:

A good example of trenches used in the banana fields. This is very useful when the banana is growing on very steep slopes. The soils are put on the upper side of the trench (a practice often called Fanva iuu).



7. Lessons from the case studies and recommendations

Clearly farmers are benefiting from the use of Climate Smart Agriculture related activities and the FFS approach appears to be the best method for improving farmer knowledge. The main aim of CSA is to maximize soil cover throughout the year. However, there are many challenges. One is that maintaining the cover for a long period is a problem particularly where the dry period is long and there is shortage of mulching materials.

In Katongelo watershed for example, farmers lack mulching material and they are even suspicious of the available grass which they claim does not decompose easily. Grain legume and maize crop residues disintegrate easily and the land does not appear to be fertile enough to support good vegetative growth. Farmers should be encouraged to plant elephant grass, Guatemala grass and guinea grass particularly as grass strips. This would provide mulching materials when required and some would be used for feeding livestock. Secondly, termites are a major problem; crop residues like maize straws are prone to termite damage.

This problem becomes more serious during the dry reason. In addition, the practice of communal grazing and bush fires often reduce available residues which may be used for mulching. Even when mulching materials may be available in the surrounding bush, the actual cutting and transfer of biomass can prove to be difficult and costly. This discourages farmers who would be willing to adopt the practice.

Thirdly, farmers do not seem to be aware that mulching sometimes provide good homes for pests such as the banana weevil. Full integration of all aspects including pest and disease control appears to be the best way of ensuring that farmers benefit from the practice.

Fourthly, it was noted that most of the facilitators do not have agricultural background. They therefore lack confidence. Facilitators should therefore be well grounded and to ensure confidence.

13. Conclusions

CSA is a relatively new concept in Uganda and there is no policy yet on CSA in Uganda. Many farmers are, however already practicing CSA related activities and are being supported by many donor agencies and NGOs. In addition there are many policies that are related to CSA including DSIP National Climate Change Policy, National Agriculture Policy, National Land Use Policy National Environment Management Authority (NEMA) and Forestry Policy. However, the major challenges include:

- Limited knowledge of the concept by many actors especially farmers
- Limited investment by the government. Initiatives are mostly left to the private sector.
- Weak Extension and financial support for CSA activities.
- Poverty among the majority of farmers, they are more interested in finding the next meal than changing their way of farming.

- Lack of coordination between the different actors. There are many small initiatives that are scattered and uncoordinated.

The opportunities which exist include the fact that many farmers recognize that the environment has changed and that business cannot be as usual. In addition, there is a lot of global interest in climate change which include the opportunities for sourcing of funds for preparation and implementation of CSA.

Key recommendation that emerge is that there should be massive sanitization of the major actors including farmers, policy makers and donor agencies.

There is need to retool current extension personnel so that they can be well grounded in the concepts and practice of CSA.

The DSIP is addressing major concerns and constraints in the agriculture sector which are relevant under CSA point of view. Investments in the sustainable land management, soil and water conservation, irrigation and institutional aspects show the potential for a climate readiness of the overall plan. Other issues are mentioned in the document, but not reflected in the investment part. One of them is related to improved livestock and range management. According to the plan the cattle corridor suffers from droughts and insufficient water for livestock which causes major problems for the pastoralists. This aspect however, is hardly reflected in the DSIP. In the fishery chapter aspects of over-fishing and declining catches are expressed as concerns in the document. In terms of funding few activities are planned to face the challenges.

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The Effect of
**POPULATION GROWTH ON
FOOD SECURITY SITUATION
AMONG REFUGEES IN NAKIVALE
REFUGEE SETTLEMENT,
ISINGIRO DISTRICT**

Zamzam Ally^{*1}- Corresponding Author
Prof. Firimooni R Banugire^{*2} – Co-Author
Assoc. Prof. Gershom Atukunda (PhD.)^{*3}–
Co-Author
Johnson Atwine^{*4} - Co-Author

Abstract

The study was about the effect of population growth on food security situation among the Refugees in Nakivale Refugee Settlement, Isingiro District. The study objectives were; to determine the main population changes taking place in Nakivale Refugee Settlement, and also to establish the effects of age composition on food availability among the Refugees.

The researcher used a cross sectional research design. The study used a sample size of 133 respondents. Qualitative data was analyzed using content analysis while quantitative data was analyzed using SPSS. Basing on the field findings, there was a significant relationship between Population Growth and Food Security situation among the Refugees of Nakivale Refugee Settlement. This was due to the fact that when the population fertility and refugee influx is high, food

becomes insufficient to the refugees and when the mortality is highly, the population reduces as most of the people become sick and weak and food is highly consumed by the weak people.

Based on the age composition, it was evident that working age bracket increases food security the fact that most households involved in work and their consumption rate is reserved compared to the younger population who are dependants as well as existing mothers who produce more young kids. The researcher recommends that the government and NGOs institute more technical personnel in the camp to help refugees by training them on better farming skills, helping them to create employment. It is also recommended that the refugees need to be trained with income generating activities both entrepreneurial and life skills. Further recommendation to the government and NGOs is that there should be addition of various food types that refugees prefer to eat, also, different seedlings should be given to refugees for them to grow more crops and improve on yielding. NGOs should intervene towards empowering mothers specifically those who have children below 12 years.

Key words: *Population Growth, Food Security and refugees*

BACKGROUND TO THE STUDY

According to Bashaasha et al, (2010), food situation performance today depends more on climate than it did in 200 years ago; the possible impacts of population growth on food security situation have tended to be viewed with

most concern among the refugees in locations where rainfed agriculture is still the primary source of food and income. However, this viewpoint is short-sighted. It was also indicated by Benhin JKA, (2006) that it does not take account of the other potentially significant impacts that climate change could have on the global food system as well as affecting the refugee situation.

Developed countries have recognized the severity of refugee situations by allocating humanitarian aid as a policy response. Czaika and Mayer (2011) indicates that humanitarian aid can be directed either to the country of origin, in the hope of addressing the root causes of forced migration or to the refugee host country as an act of burden sharing (Morel 2009), or to both. Paradoxically, both proponents and opponents of providing humanitarian assistance to address refugee situations blame refugees for being a burden on their host country. Refugees interact with their host economies in various ways and can have far-reaching consequences on their local hosts.

It is however established that the negative consequence is the threat that refugees pose to the food insecurity of host countries. Bashaasha et al, (2010) shows that this situation is caused by civil wars which can be long lasting, most refugees are likely to reside in host countries for protracted periods, implying significant long-lasting impacts on host communities and their food security situation. Furthermore, most refugees are hosted in neighboring countries that do not necessarily face better economic conditions and often have pre-existing food insecurity. This may place a further burden on hosting populations and may erode their resilience to withstand shocks and achieve food security over time.

It is indicated that Population dynamics on food security situation continue to escalate and Human population trends are centrally significant to food insecurity as well as environmental destruction causing global warming and its impacts (Benhin JKA, 2006). It is also indicated that rising populations in developing countries put increasing demands on natural resources such as land, water, and energy supplies and the end result is food insecurity (Wheeler and Von Braun 2013). As human communities use more resources, they generate contaminants, such as air and water pollution and greenhouse gas emissions, along with increasing quantities of waste. In different refugee camps in USA, Germany, Uganda, the problem has increased as most of the refugees continue to seek for asylum.

The links between population growth and food security situation in Africa are further reinforced by studies examining the ability of food production systems to keep pace with long-term demographic changes in the developing world since they have a higher rate of refugee escalation (Conway and Toenneissen 2003; Gilland 2002; Alexandratos 2005). Most of the developed countries and UN NGOs have intervened to rescue the refugees but they remain being affected with the food problems.

Furthermore, the rate at which population is increasing is so alarming with increasing horst of refugees. It is increasing at rate that is far higher than food production in the continent. In fact, African countries like Rwanda, Niger, Uganda, Nigeria, Kenya and Senegal are experiencing a population growth rate of between 2.8-3.4 percent per annum as refugee life continue to increase, which is unacceptably high and making it difficult for

these countries to feed their people (Apuuli B., Wright J., Elias C. and Burton, 2011).

Despite expected increases in food production in Africa, rapid refugee population growth will lead to notable increases in the size of its population living in food insecurity (Conway and Toenneissen 2003). Similar links are found in policy recommendations that target population growth reduction as a cornerstone for developing interventions for improving food security outcomes in Africa among the refugees (Jarosz 2011).

However, the relationship between population and food security in Africa is likely to present a more complex policy challenge for efforts to improve sub-Saharan Africa's food security disadvantage relative to other regions as the number of displaced people continue to exist (Apuuli B., Wright J., Elias C. and Burton, 2011). In other words, as a result of its underlying high fertility regimes and expected decreases in mortality trends, sub-Saharan Africa population will still grow faster than populations in other regions (UN 2009). Yet, some studies suggest that trends in its food supply will considerably lag behind those found in other developing regions (Long et al 2006; Muller et. al. 2011).

Furthermore, Sub-Saharan African and its populations face a number of challenges that increase their vulnerability to the causes and consequences of food insecurity as caused by an over increasing populations as well as wars that lead to a refugee situations (Wheeler and von Braun 2013). Also, combinations of other factors including poverty cause hunger problems. The African people have learnt and re-learnt nothing from the interventions.

Within the region of Africa, progress towards improving human welfare is constrained by the high prevalence of refugees and as a result hunger, malnutrition, and wide-spread poverty as well as wars and conflicts have led to refugee living life. Not surprisingly, African countries have collectively made the least progress towards achieving the Millennium Development Goal of reducing hunger by half by 2015 (Clemens, Kenny, and Moss 2007). In fact, Africa is the only region in which levels of hunger increased in recent decades (Sanchez et. al 2005), and currently, close to one third of its population lives in chronic hunger and the affected persons are the refugees (Lobell et al. 2008).

On the other hand, the constraints can have deleterious consequences for increasing population dynamics in the region of Africa as caused by refugees (Apuuli B., Wright J., Elias C. and Burton, 2011). Clemens, Kenny, and Moss (2007) also underscore the fact that there are still significant challenges to achieving food security situation in sub-Saharan Africa as there is an increasing cases of refugee life. At the same time, these challenges are not insurmountable. Among the countries in Africa, progress towards the goal of food security requires new efforts to develop appropriate interventions for mitigating its causes and consequences for populations at risk especially the most refugees (FAO, WFP, and IFAD 2012). For these efforts to succeed, policy makers need to develop a comprehensive understanding of the demographic factors that will affect food security in sub-Saharan Africa in the coming decades.

Uganda is hosting 1,064,043 refugees as of 01 February 2017, according to reports from UNHCR and

the Office of the Prime Minister's (OPM) Department of refugees. The number of refugees coming to Uganda from South Sudan remains very high, and there are currently over 443,000 refugee children from South Sudan. As of 21 February 2017

Imvepi settlement is now hosting new refugees as the Palorinya, Yumbe and Pagirinya settlements have reached their capacity. According to UNHCR 2017 reports, refugees arriving in Uganda – mainly women and children – continue to report general insecurity, limited access to food and basic services, violence, incidents of rape and sexual and gender based violence (SGBV) of women and girls, arbitrary detention, indiscriminate killings, and destruction of property by armed forces, as reasons for fleeing their homes in South Sudan (UNHCR 2017 reports). Refugees indicate that due to insecurity they are unable to use the main roads to the border, and are thus forced to walk in the bush to reach Uganda many for several days and usually with few belongings and limited access to food, water and other needs.

The Burundi Minister for Home Affairs was in Uganda in February (2013) to appeal to the Burundian refugees in Nakivale settlement and the Isingiro district to return home. There is reportedly increased fighting in the DR Congo, although, this has not resulted in a major escalation of Congolese fleeing the country into Uganda. The average daily influx from DR Congo is 40 persons, but it has been as high as 81 (as observed at the beginning of February) (UNHCR 2017 reports). The main reasons for people leaving include night attacks by armed groups leading to injuries and deaths, SGBV, and forceful recruitment of youth into armed groups.

Findings from the UNICEF, UNHCR and WFP led food security and nutrition assessment conducted in December 2016 (UNICEF, UNHCR and WFP 2016, reports), within refugee settlements indicates critically high global acute malnutrition (GAM) levels in settlements receiving the bulk of the new arrivals from South Sudan. GAM rates in Rhino Camp are currently 21.5 per cent and 14.9 per cent in Lobule camp. Other settlements recorded rates above the WHO “serious” threshold (above 10 per cent), including Kiryandongo, BidiBidi and Adjumani. The remaining settlements predominantly in the western region have GAM below 10 per cent. In comparison with findings from the same time in the previous year (UNICEF, UNHCR and WFP 2015 reports), a notable deterioration of the nutrition situation is observed in Rhino camp from 10.5 per cent to 21.5 per cent and Lobule camp from 2.6 per cent to 14.9 per cent. Minimal changes are observed in the other settlements.

According to the Integrated Food Security Phase Classification (IPC, 2017 report), the proportion of food secure population (IPC 1) has declined from 83 per cent in July 2016 to 69 per cent in January 2017. In Uganda, the population is composed of different backgrounds as they come from various countries including Burundi, Somalia, and DRC among others (UNHCR 2017 reports). Majority of these refugees are vulnerable and this vulnerability affect food security. Most of the refugees have produced many children as they can though family planning methods have been emphasized by WHO but most refugees do not adopt these methods (Nakivale Refugee Settlement report, 2016).

The recent Food Security and Nutrition Assessment (FSNA), supported by UNICEF with the OPM, UNHCR and WFP (2017 report) indicates an overall stable and improved under-five nutrition situation, although there are critical hotspots for urgent action and close monitoring. Populations in Uganda are expected to grow as agricultural production, an important part of food security, declines.

Most people in Uganda depend on agriculture for their livelihoods. The sector employs 65 percent of the labor force and produces 32 percent of GDP growth. However, agricultural production per person did not change in the region from 1960 to 2017 in terms of both overall production and cereal yield (FAO, WFP, and IFAD 2017). Population growth is putting pressure on farmland. Almost quarters of rural households in refugee camps are virtually landless and have little non-farm income. Population pressure caused by refugees contributes to food insecurity by increasing a country's vulnerability to food shortages as it leads to droughts and floods.

Due to the increased refugees in Uganda, population pressure is more pronounced in areas that are susceptible to these events and increased demand for food in districts like Isingiro, Kamwenge have escalated. This puts additional pressure on the food supply system and limited food resources, such as food stocks. Uganda continuing to host refugees in their camps has put the population dynamics on food tensions and this calls for an intervention by government and NGOs to help in reducing the challenge (Nakivale Refugee Settlement report, 2016).

It is further established that due to a higher increase of wars, many refugees have run away from their mother countries and have lived a refugee life in foreign countries. Due to this kind of life, the dynamics in which this population has lived is quite varying basing on age, size, and gender and due to this; it has affected the food security of the refugees (FAO, WFP, and IFAD 2017).

Isingiro-Refugees in Nakivale Resettlement in Isingiro District are crying following a food crisis that has hit the camp. The refugees depend on food given by United Nations High Commissioner for Refugees (UNHCR) and harvests from land given to them to supplement food supplies. But recently food rations by UNHCR were reduced and this has been worsened by persistent drought that has been experienced in the district. The refugees, for example, used to get 15kgs of maize flour per individual every month but this has since been reduced to 1.5kgs. As a result of refugee crisis, Officials from UNHCR and the Office of the Prime minister (OPM) say there has been a food crisis across the world which has led to reduction of food rations (UNHCR 2017 reports). They advise refugees to use the little food given sparingly as they devise other means like practicing kitchen gardens (FAO, WFP, and IFAD 2017). Refugees used to grow their own crops but due to climate challenges, especially prolonged drought and increased population, they cannot make any harvests. This study assessed the effects of population growth on food security situation among the refugees of Nakivale Refugee Settlement, Isingiro District.

STATEMENT OF THE PROBLEM

The issue of food security situation is a worldwide concern. It is established that 72% of the refugees die of hunger. Uganda being a horst country for refugees, it currently continues to receive a large influx of refugees year after year which has a great effect on food security situation (IPC, 2017 report). According to FAO, WFP, and IFAD (2017), currently Nakivale refugee settlement is a home to 35,000 refugees. These refugees require food and also land for cultivation.

It is important to note that the high influx of refugees which continue to trickle in the settlement camp required a lot of food which outstretches the efforts of UNHCR and WFP. For example in Nakivale refugee settlement 45% of the refugees receive enough food while 55% of the refugees cry foul that they receive little food. Even the host communities also continue to cry foul that refugees have resorted to stealing their food from their gardens (UNHCR 2017 reports).

Available research indicate that refugees in Nakivale refugee settlement depend on food given by United Nations High Commissioner for Refugees (UNHCR) for example, refugees, used to get 15kgs of maize flour per individual every month but this has since been reduced to 1.5kgs. Officials from UNHCR and the Office of the Prime minister (OPM) say there has been a food crisis across the world which has led to reduction of food rations (UNHCR 2017 reports) and it has affected the food access and availability to the refugees in Nakivale refugee settlement.

The problem that remains unanswered is whether the food crisis among the refugees in Nakivale refugee settlement is as a result of the high population caused by the high influx of refugees. This research therefore assessed the effects of population growth on food security situation among the refugees of Nakivale Refugee Settlement in Isingiro District.

THEORETICAL FOUNDATION OF THE STUDY

This study was guided by self-reliance theory where it was founded that newly arriving populations have inherent capabilities when given opportunities, and its objective is to assist refugees to obtain economic and social self-sufficiency as quickly as possible after arrival in the host area (Goldsmith, 2013). The theory argues that refugees have the skills, capacity and agency to stand on their own and be able to sustain them without depending on external humanitarian aid. This theory has been universally embraced by policy-makers and aid agencies and has now become an increasingly visible part in refugee assistance and protection programmes worldwide.

METHODOLOGY OF THE STUDY

The study used a cross sectional research design. The justification for this cross section design was that it was flexible and provided opportunities for considering many different aspects of a problem in-depth at a particular time. The application of a cross-sectional study design was

also to enable the researcher to compare the effect of population growth on food security among the refugees of Nakivale Refugee Settlement.

The study was carried out in Nakivale refugee settlement. The settlement is located near the Tanzania border in Isingiro district, Southern Uganda, currently hosts the largest number of refugees in the country. Refugees from the Democratic Republic of Congo (DRC) constitute the majority of the settlement's population; Nakivale also accommodates refugees and asylum seekers from diverse countries, such as Somalia, Rwanda, South Sudan, Ethiopia and Burundi. Although the size of the settlement varies, it is estimated at well beyond 100 square kilometres. This enormous area is geographically divided into three administrative zones – Base camp, Juru and Rubondo. These three zones, in turn, contain a total of 74 individual villages (Nakivale Refugee Settlement report, 2016).

The population in Nakivale is heterogeneous with many cultures and groups from different nationalities. The settlement now accommodates over **62,000** persons of concern. There is an estimated population of over 35,000 nationals surrounding the Refugee Settlement who directly benefit from water, education, health and nutrition programmes in the settlement. Therefore, the study population comprised of the entire population of Nakivale Refugee Settlement and these were categorized as the refugees, Camp Management including the Camp leaders, UNHCR staff, WHO staff, WFP staff, prime ministers staff members and Health workers.

Data was collected using a number of mixed methods, which included; interview method, focused group discussions (FGDs) and questionnaire survey method. Data from questionnaires was analyzed using the descriptive and inferential statistics with the help of data analysis software - Statistical Package for Social Sciences Package (SPSS). Analysis of qualitative data was done manually using content analysis, notes were written and scripts were analyzed by coding; where information of similar code categories was assembled together meaningfully.

RESULTS AND ANALYSIS

Field findings established various effects of population size on food security situation in Nakivale Refugee Settlement. Results were analysed using simple inferential statistics, where results were obtained in form of tables, frequencies, graphs as well as percentages. The findings were as follows:

Effects of population size on food security situation

The Researcher posed a question to the respondents to establish when the respondents receive food. The elicited response as indicated in the following Table.

In Table 1.1, majority of respondents 101 (97.1%) indicated that they receive food every month compared to those who receive it every after 6 months 1 (1%). This is an indication that almost all the refugees in the camp receive food monthly. However, respondents revealed that those refugees who receive food quarterly or half a

year were mobile and some of them were spies though the refugee management had never notified these refugees, also, some refugees keep on moving from Nakivale to Mbarara, Kampala and this affects them to be given monthly foods.

Table 1.1: Showing the Respondents’ opinion on when they receive food

Period	Frequency	Percent
Monthly	101	97.1
Quarterly	1	1.0
Half a year	1	1.0
Total	103	100.0

Source: Primary Data, June 2018

A question was also paused to establish how much food is received per month elicited response indicated below.

According to Table 1.2 below, majority of the respondents 35 (33.9%) revealed that the most commonly supplied food to the refugees was Posho/maize flour. An average person per household gets 12kg per month.

Table 1.2: Showing how much food received by an average person per month

Common Food supplied	Number of kgs	Frequency	Percent
Posho/maize Flour	12	35	33.9
Beans	2	34	33.0
Cooking oil	1/2ltr	34	33.0
Total		103	100.0

Source: Primary Data, June 2018

While beans were also said to be supplied to refugees and 34 (33.0%) of the respondents indicated that 2kgs are given to the individual while 34 (33.0%) reported that cooking oil was supplied to individuals as an average person gets a half litre. However, some respondents were reporting that these foods were not enough to complete a month as some respondents were asking the management of the camp to increase on the amount of food received.

The researcher also posed a question to ascertain the main causes of food insufficiency in Nakivale Camp. The elicited response indicated as follows:

Table 1. 1.2: Showing the main causes of food insufficiency in Nakivale Camp

Main causes of food insecurity	Frequency	Percent
Many members of a family due to high birth rate	37	33.0
Inadequate food supply	32	28.6
Lack of enough lands for farming	8	7.1
Drought	35	31.2
Total	112	100.0

Source: Primary Data, June 2018 (Multiple Responses)

Field research showed that the main causes of food insecurity were due to many members of a family due to high birth rate as indicated by 37 (33.0%) of the respondents. It was revealed by the respondents that most of the households have 5-10 young people or households. The category of these young people eat a lot as they do not contribute anything hence the little food provided by WFP become insufficient.

According to table 4.12, respondents revealed that the main causes of food insufficiency Nakivale Camp was inadequate food supply as cited by 32 (28.6%) of the respondents. It was said that the supporters who help refugees give them little food and by the end of the month, food is finished. In a FGD with the refugees in Kabahinda village, they had this to reveal; *‘sometimes, we are given*

less food or posho only, this tempts us to become more traumatized because we do not afford supplements like beans' (FGD, June 2018)

Further research showed that lack of enough land for farming caused the refugees access less food as indicated by 8 (7.1%) of the respondents. it was said that the land portion given to a household is too small to grow beans, tomatoes, maize, graze goats. Moreover, the household keep on increasing as reproduction of the young ones exist. This means that the little land that is provided does not lead to enough food supply.

It was lastly indicated by 35 (31.2%) of the respondents that drought was causing food insufficiency in the Camp. This was evidenced that last year, crops were distracted because of draught. During an interview in Kabahinda village, one local refugee established that; *'in 2017, had grown dodo, spinach, and beans but these crops were destroyed by the draught, I could not get enough water to put on my crops, some goats in the neighbor also died' (Interview, June 2018)* while in the Documentary review in the officer of agriculture, it was found out that; *'20 people died because of draught, 122 goats died, 167 chicken died'* the causes for these living things were draught. This indicates that the supply of food in the long run was affected.

Ways of food security improvement

A question was also paused to establish ways of food security improvement. The elicited response indicated the following:

Table 1.3: Showing the ways of food security improvement

Ways of improving food security	Frequency	Percent
Birth control	23	17
Land	25	18.5
Kitchen Gardens	36	26.7
Training on income generating activities	32	23.7
Not sure	19	14.1
Total	135	100.0

Source: Primary Data, June 2018 (Multiple Responses)

The study findings in table 4.13 indicate that most of the respondents constituting 36 (26.7%) reported that kitchen gardens have been practiced by the refugees. It was said these gardens are friendly manageable because looking at a portion of land given to the household, almost one can utilize the land throughout the seasons. However, the respondents revealed that government and NGOs should provide seedlings to plant in these gardens. However, in a Documentary review from the office of WFP, *in 2016, it was found out that 90% of refugees who come to the office seeking for seedlings to grow in their gardens are provided with them, however, 80% of these refugees who take seedlings to grow have ended up eating them before they mature (Documentary Review, June 2018)*. This indicates that there is need for NGOs to

find a way of how they can strengthen this program as a way of improving food security in the Camp.

Also, as way of improving food security as 32 (26.7%) respondents established that there was need of training in income generated activities especially skilling including had craft, tailoring, carpentry and joinery, juice making. These skills were important as they were good at creating employment among the redundant refugees. In an interview with one youth in New Congo village, he had this to say; ***‘when I reached in Nakivale in 2016, I was trained on how to make mats, I have continued with this business, I have created employment for myself and even I am able to earn a living where I easily buy food and other usable to my family’ (Interview, June 2018)***

Research as shown by 25 (18.5%) established that enough land needs to be provided to the refugees as a way of improving on food security. This is in comparison with the small land given to a household and the type of crops that may be grown on this land. Therefore, if the refugees are given enough land, they may easily grow some crops to sustain their families.

Also, 23 (17%) of the respondents said that refugees needs to control on the birth rates through the use of family planning methods like use of pills, condoms. It was exemplary shown by one refugee who said that he had 2 children but with a difference of 5 years and challenges food, education and medication were not affecting him so much as compared with the other households who have 10 dependents. However, this was in contrast with the ideas of some refugees from Somalia who were interviewed during a FGD and had this to say; ***‘Allah is annoyed when one kills or does not produce, producing is a natural gift***

from Allah, our religion and culture condemns family planning and so, if we produce, Allah will guide us in providing food to our children’ (FGD, June 2018)

Looking at this attitude, few people have adopted the methods and other refugees continue producing as they want and children have suffered the consequences.

The response indicated by 19 (14.1%) did not show any side but when asked, they were not affected by all conditions. Their families were living in good conditions as required by an average person s/he can live on the earth.

In table 4.4 below most of respondents 50 (48.1%) suggested that camp management should control birth rate through sensitizing people on the use of family planning methods. Refugees should be advised that the use of family planning does not prevent one to produce but rather it encourages the partners to plan for the children in terms of providing foods, education and medication.

Table 1.4: Showing the Respondents’ opinion on how camp management should help to improve food security.

Opinions	Frequency	Percent
Control birth rate	50	48.1
Availing refugees with enough land to farm	13	12.5
Increase on the number of food suppliers to refugees	39	37.5
Others	1	1.0
Total	103	100.0

Source: Primary Data, June 2018

The second category of respondents showed that there is need to Increase on the number of food suppliers to refugees in Nakivale refugee camp as indicated by 39 (37.5%) of the respondents. it was said that the food given to an average individual was small for a month and this was even getting over before the ends hence affecting the young children with malnutrition and the old persons with ulcers. An increased food supply of foods to the refugees meant improved nutrition to the people.

The camp management should help to improve food security by availing refugees with enough land to farm as it was indicated by 13 (12.5%) of the respondents. it was said that the refugees are given little land to practice farming hence affect them. However, in an interview with officers from the OPM and WFP, they had this to say; ***‘the land given to refugees is much more enough to practice any business of their kind, the farming they practice is not extensive where it requires a lot of land but a moderate farming where one can eat and earn income to sustain the livelihoods’ (Interview, June 2018)***

However, the last response belonged to others as indicated by 1 (1%) in others included security of the grown crops, harvesting techniques. These were also important in the farming process, though at this stage, most people have different challenges depending on the time of use.

Table 1.5: Showing the effects of population size and migration on food security

Effects of Population Size and Migration	Frequency	Percent
Reduction of population size which affects food accessibility	44	33.3
Out flow of hardworking population hence weak population is affected by the quantity food out put	61	46.2
Increased cases of malnutrition	27	20.5
Total	132	100.0

Source: Primary Data, June 2018

Research from the field showed that, there was a reduced population size which affected food accessibility as established by 44 (33.3%) of the respondents. It was indicated that households who are few and powerless in the family setting have faced a challenge of food as compared with the households who are many and coordinative to work.

Respondents also revealed that there was an out flow of hardworking population and hence weak population is left in the camp and are affected by the quantity of food output as indicated by 61 (46.2%). This was true when most of the families with many dependents were having challenges food and they had increased cases of malnutrition as it was established by 27 (20.5%) of the

respondents. It was also said that most refugees tend to move to USA so as to have asylum hence keep on sending money to their relatives in the camp.

Relationship between family size increase and meals taken a day

Table 1.2 above shows the Relationship between family size increase and meals taken a day

Interpretation: there is significant evidence of relationship between family size and meals taken a day ($p < 0.05$)

Interpretation: from Figure 1.2 in the above Bar Chart, most of the households that had members who missed a meal in a day in some months not every month had increased by 02 people whereas the least that missed a meal in some months had increased by 04 and above people.

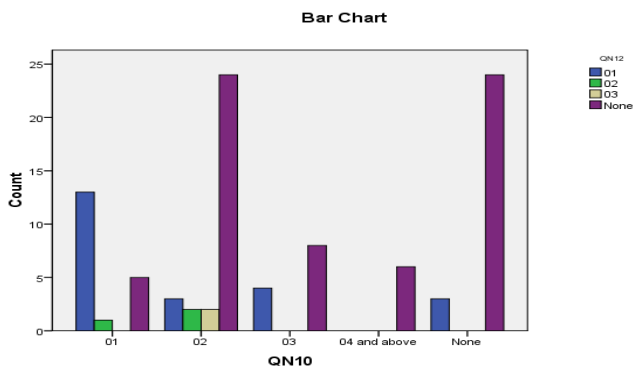


Figure 1.2 shows the relationship between family size increase and meals taken a day

Discussion of findings on the effects of population size and food security

Field findings showed that population size and migration affect food security situation and to this, respondents said that migration lowers population size which affects food accessibility. This was true in a way that most refugees were migrating to Mbarara, USA, Kampala or sometimes migrating to their home countries and this reduced food production to the people that remain in the camp. It was also said that during the time of people in trying to move away, they destruct their fellows' foods hence the crops are destroyed when they are younger at their premature stage hence it affects the owners of these crops.

In the related instance by (WFP 2011, 2013a, 2013b), many refugees who are energetic have left their camps and the population that remains there is powerless and they are not active to secure food hence they become affected due to this challenge.

Further research showed that the out flow of hardworking population has left weak population in the camp hence affect the quantity food output as the less powerful people are left in the camp. The weak people including the older and the young have less power that may encourage them work. This is in relation with the views that refugees have their freedom to ask for any asylum and they look for areas that have better conditions which may favour them. However, in trying to do so, they have affected the remaining population where these people have suffered from challenges of food (Jacobsen, 2000).

As a result of population size and migration, there have been effects of increased cases of malnutrition in Nakivale Refugee Camp. It was said that the people left in the camp are weak to engage in hard work of digging and in the process the young ones are affected with hunger challenges hence malnutrition.

This relates with the views that many refugees in Africa and Asia live in a unique harsh environment for extended periods while being heavily dependent on continuous international food, and other forms of assistance, often confined to camps (Jacobsen, 2000). The international support needed to sustain their basic livelihoods has not always been forthcoming. These situations create precarious nutrition and protection situations.

CONCLUSION

Basing on the field findings, there is a significant relationship between Population Growth and Food Security situation among the Refugees of Nakivale Refugee Settlement. This is based on the fact that when the population fertility, and refugee influx is high, food becomes insufficient to the refugees. Also when the mortality is highly, the population reduces as most of the people become sick and weak and food is highly consumed by the weak people. It was true that when the population increases, food availability becomes a challenge and cases of malnutrition also increases hence people start dying of hunger and other diseases.

RECOMMENDATIONS

The researcher recommends that government and NGOs like WFP, WHO, UNHCR should institute more technical personnel in the camp to help refugees by training them on better farming skills, helping them to create employment and avail them with enough land to grow more food as this will help on improving food security in Nakivale camp. This aspect was based on the fact that most of the refugees did not use improved farming skills like mulching, watering but training them would help them acquire good skills of improving food security.

The research further recommends that refugees should be trained on income generating activities both entrepreneurial and life skills. This is based on the reasons that youths were lazy and were not engaged in income generating activities like carpentry and joinery, chapatti making, art and craft work yet these people are still strong to work. Therefore, training these youths in skilling is hoped to reduce food insecurity and also to increase on their purchasing power which will help on improving food security in the camp.

Further recommendation to the Government and NGOs is that there should be addition of various food types that refugees prefer to eat. Also, different seedlings should be given to refugees for them to grow more crops and improve on yielding. Also, refugees should be given balanced diet foods to improve their health” and increase on the quantity of food given to the refugees as it is still not enough for them. This will help achieve the level of food security in the refugee camp.

Areas for further research

The study was not exhaustive owing to the constraints of time and financial respondents. Hence more studies can be done on the following;

There is need for a thorough research on gender issues concerning food security and family planning among vulnerable persons.

Further research can also be conducted on the relationship between culture and food security, this is because it was found out that culture and beliefs link what they ate before and after what they eat now as refugees.

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ICT SKILLS POST-GRADUATE STUDENT TEACHERS AT BISHOP STUART UNIVERSITY

Richard Twebaze

Abstract

This paper was based on a study carried out among 50 post graduate student teachers pursuing a Masters or Post Graduate diploma course in Education. The findings showed that 76% of the participants rated their ICT skills as either low or moderate. While the majority rated themselves highly on word processing, the majority had little or no knowledge on the use of ICT to analyse research data. It is recommended that universities should include a compulsory course unit on research data analysis using ICT. It is further recommended that serving teachers should be given in-service training courses to enable them improve their ICT skills in order to meet the demands of the 21st century.

Introduction

Many scholars argue that the world is currently on the verge of or is already ushered into the fourth industrial revolution, characterized by artificial intelligence. The precursor to the current revolution, the third industrial revolution was characterized by the widespread use of electronics and information technology (Schwab, 2016).

Throughout the world, skills in the use of Information Communication Technology are becoming essential from as far back as pre-school. Teaching and learning at all levels is shifting to the use of online sources and platforms. E-learning is gaining popularity because it is said to be more effective, is not limited by time and space, has capacity to reach more people, is cost effective and is a real and possible solution to teacher shortages (Hurley, 2022). Moreover, E-Learning is more suitable in the current fast paced world where many people desire to combine work with studies.

In a world where working and studying from home is increasingly becoming preferred, there is an urgent need for teachers to be equipped with ICT skills in order for them to remain relevant in the new normal.

While more and more people are inevitably getting exposed to the use of ICT, there are still challenges especially in the developing world because of limited availability of equipment and infrastructure, but also because of a poor attitude to change especially among the older students who lived part of their lives in the pre-digital era.

It is therefore important for more studies to be carried out to understand the nature of the challenges among the older and even younger students regarding acquisition and use of ICT skills in order to enable the current and future generation to be part of the new world where information and technology are the key pivots of all development.

Literature Review

According to Itslearning.com (2016), ICT skills for teachers in the 21st century include knowledge of use of basic programs like Ms word and Power Point, ability to back up files, ability to run on-line projects and social networking skills. Similarly, Patankar & Jadhav (2014) noted that teachers need skills in using the internet, wireless networks, cell phones and other communication technologies. Other skills identifies as crucial for teachers include word processing, internet use, file navigation, use of e-mail, presentation software, spreadsheets and e-learning platforms.

Wong A.Y & Daud, K (2018), in a study done in Malaysia, noted that teachers need to work on their attitudes towards the use of ICT, use of ICT in planning and designing teaching materials and use of ICT in teaching and assessment. However, it was found that many teachers considered that use of the internet to search for teaching content was extra work that was a bother to the teachers. It was also found that most teachers, especially the senior ones, did not like to change and were not willing to learn and improve their ICT skills.

In a study carried out in Ghana (Edu, J. et. al. 2018), analysis of the data collected revealed that teachers' ICT skills were at the moderate level. The study also revealed that teachers' uses ICT for general and personal purposes more than they use it for pedagogical or work purposes. In terms of ICT integration in classroom lessons, it was found that, teachers hardly use technology in their lessons because of not having ICT integration skills as well as lack of resources in the Basic schools. The study

recommended the need for regular in-service training programme for teachers with a direct focus on ICT integration and ICT usage for teaching and learning.

Murithi & Yoo (2021), in a study carried out among teachers in Kenyan public schools found that most of the teachers received only basic computer literacy training. It was also found that although teachers perceived the use of computers as necessary, they faced difficulties integrating technology in their lessons.

In a study involving teachers in the Swedish nine-year compulsory school in the province of Västra Götaland located in the south-west of Sweden, Catarina, P. (2012), found that positive attitudes related specifically to ICT as a useful tool for teaching and learning and a strong sense of self-efficacy in using computers in education seem to influence the use of ICT the most.

Niyosha M. H (2013), in a study done in Malaysia found that the level of ICT among teachers was moderate to high. The findings also revealed that females used ICT more than males and younger teachers used ICT more than older teachers.

Meenakshi (2013), reported that many teachers are reluctant to use ICTs, especially computers and the internet. Some of the reasons for this reluctance include poor software design, skepticism about the effectiveness of computers in improving learning outcomes, lack of administrative support, increased time and effort needed to learn the technology and how to use it for teaching, and the fear of losing their authority in the classroom as it becomes more learner-centered. In terms of using internet and other ICT as a resource for lesson preparation, most of the teachers interviewed, admitted to never or rarely

using it, while very few used the internet to gather information sporadically or regularly.

Meanwhile, according to National centre for Education Statistics (2020), in 2018, half of U.S. eighth-grade teachers reported using ICT at school when teaching every day, which was not significantly different from the ICILS average of 48%. However, the U.S. percentage was lower than the percentages of teachers in Moscow (76%), Denmark (72%), and Finland (57%)

According to Kassimu & Peter (2014), there were several challenges facing effective implementation of ICT curriculum in primary schools in Dar es Salaam. The challenges found included unwillingness of some teachers to teach ICT, lack of interest to teach ICT, lack of ICT literacy among teachers and pupils, lack of pedagogical knowledge and limited access to ICT facilities by most teachers and pupils.

Habibu & Al Mamun, A. (2012), in a study aimed at finding out the difficulties faced by teachers in using Information and Communication Technology (ICT) in classroom teaching-learning in technical and higher educational institutions in Uganda reported that the major barriers were lack of genuine software, inadequate computer in the classroom, low speed internet, lack of motivation from both teacher and student side to use ICT, lack of proper training skills, unavailability of latest ICT equipment, lack of expert technical staff, poor administrative support, and poor course curriculum.

There are various challenges which need to be considered by policy makers, planners, educators and education administrators to determine the optimal level of integration of ICT in Teacher Education Program which

include limited infrastructure, qualified staff, finance, teaching materials and commitment of various stakeholders; Pathak, A.R and Patil, D.Y (2020).

Krish & Zabidi (2007) noted that many teachers and lecturers alike have progressed from the experience of learning in the classroom to teaching in the classroom accustomed to traditional methods of learning. A sudden change from what is familiar to something different and new may result in resentment or rejection.

According to Israkhan (2021), many teachers still prefer printed books because they believe that ICT devices are likely to distract the attention of learners and this is likely to lead to wastage of time.

Efforts to Equip Teachers with ICT Skills

There have been numerous efforts in the recent past to equip Ugandan teachers with ICT skills. Muleme (2014) reported that an estimated 300 teachers were trained in ICT in a program funded by Uganda Communications Commission under the rural development fund and that schools without mains electricity were given solar powered computers. The Spy Uganda (2019) similarly reported that there was a country wide effort by UCC to improve capacity building in ICT skills among teachers in Uganda.

Despite the efforts, Bbuye (2015) pointed out that in Uganda at that time, only 45% of secondary schools that had ICT infrastructure did not adequately use the infrastructure due to lack of skills and low ICT literacy levels of school managers, teachers and students.

Similarly, Kisakye (2015) noted that ICT usage in Uganda had a long way to catch up. It was noted that while almost every school had a computer laboratory, when you visit the schools you find the computers covered in dust and the students are warned not to touch them lest they spoil them.

Elsewhere in the developing world the situation appears to be more or less the same. Enu, *et al* (2018), in a study carried out among basic school teachers in Ghana noted that integration of ICT into teaching practice was at a risk of being compromised if teachers possessed little or no knowledge of ICT. Findings of the study showed that teachers' skills in ICT were at the moderate level and it was reported that teachers mainly used ICT for general and personal purposes such as chatting on social media and entertainment rather than for pedagogical purposes.

Importance of ICT Skills for Teachers

The importance of ICT skills for teacher in the 21st century need not be over emphasized. Bhattacharjee, B *et.al* (2016) noted that ICT skills help teachers to access unlimited sources of up to date and accurate information that can help them in teaching. Similarly, Khalifa & Baig (2018) established that ICT was of great importance in effective professional development among teachers.

Teachers with good ICT skills are also more likely to find a lot of useful information on modern and effective teaching methods and resources in form of published papers and textbooks, pictures, videos and animations. In a world where on-line teaching is gaining a lot of popularity due to its economy and efficiency, any teacher

without sufficient ICT skills is likely to find it difficult to cope. The use of ICT certainly makes learning more fun and memorable and also enables the teacher to link up with fellow teachers around the world.

Problem Statement

ICT skills among teachers and students in the current times are inevitably essential. However, a significant digital divide still persists between developed and developing countries in terms of both physical resources and the capability of teachers to effectively utilize even the few available resources (Newby, 2013). The purpose of this study was to establish the extent to which post graduate students possess basic ICT skills so as to come up with recommendations on what needs to be or can be done to improve the situation.

Objectives

This study was guided by the following objectives:

- a) To find out the extent to which post graduate student teachers in Uganda are equipped with ICT skills
- b) To find out the challenges faced by post graduate student teachers in Uganda in acquiring ICT skills.
- c) To suggest measures improving ICT skills among post graduate student teachers in Uganda

Methodology

The study employed a cross sectional survey design. All 48 students in a semester one post graduate class that included students pursuing Master of Educational Management Administration and Planning and Post Graduate Diploma in Education were asked to participate in the study. Data was collected using online questionnaires, interviews and observation.

Findings

The findings of the study showed that 71.4% of the participants were male while 28.6% were females. The majority of the participants (62%) were secondary school students while 10% were Primary School teachers. The remaining 18% were administrators in educational institutions and departments.

While almost all participants said they had an active personal e-mail address, only 23% said they used their email address always. 14.3% said they used their email address often, 19% occasionally, while 42.3% said they used their email addresses only sometimes.

Asked whether they had received any formal training in ICT prior to joining the course they were currently pursuing, 57.1% answered yes while 42.9% said they had not received any training in ICT. The majority of participants (76%) reported that they had not received any formal training in ICT as part of the course they were currently pursuing while only 24% reported to have received some formal training in ICT as part of the course they were currently pursuing.

Asked whether they had easy access to a computer whenever they needed to use one, only 57.1% of the participants said they always had easy access while 47.1% said they had access only sometimes. Of all the participants, only 38% said they owned a personal computer. However, 95% of all participants said they owned a smart phone that they used as their main ICT device.

Table 1: Summary of Findings on Basic ICT Competency Levels among Post Graduate Student Teachers

	Very Low	Low	Moderate	High	Very High
Overall ICT Skills	9.5%	3.3%	33.3%	14.3%	9.5%
Use of Ms Word	14.3%	23.8%	14.3%	33.3%	14.3%
Use of Ms PowerPoint	19%	23.8%	14.3%	33.3%	14.3%
Use of Excel Spreadsheets	19%	28.6%	28.6%	23.8%	4.8%
Use of SPSS for Data Analysis	61.9%	19%	18.3%	0%	0%
Interpreting SPSS Results	47.6%	19%	5%	9.6%	0%
Use of Online Questionnaires	19%	23.8%	23.8%	24.8%	9.5%

Ability to print a document	25%	10%	10%	20%	35%
Ability to share a document as an email attachment	9.5%	19%	23.8%	14.3%	33.3%
Ability to download documents from internet	4.8%	14.3%	4.8%	28.6%	47.6%
Ability to use zoom for Lectures	4.8%	4.8%	14.3%	28.6%	47.6%
Typing speed	0%	42.9%	23.8%	23.8%	9.5%
Ability to create, store and retrieve document on a computer	4.8%	19%	14.3%	14.3%	47.6%
Ability to use phone as an ICTdevice	0%	14.3%	19%	14.3%	52.4%

While majority of respondents said they were confident about their ability to type, store and edit documents, most of them felt their abilities in the use of Excel and SPSS for data analysis were very low. Most respondents found the use of power point for presentations and how to generate charts.

ICT Usage among Teachers

In this study, it was deemed necessary to establish the source of ICT skills for the teachers that participated in the study. The findings showed that 47.8% attained the skills they had through self-training and practice while 26.1% said they learned from friends and colleagues at work. Another 26% said they had attended a self-sponsored formal training in ICT. None of the participants said they had attended a formal training course organized by their employer.

Regarding ownership of ICT gadgets, all the participants reported that they owned and used a smart phone. While 65% said they always used their smart phones for ICT, 35% said they used the smart phones for ICT only sometimes. However, only 74% said that they owned a personal computer and the majority said they had recently acquired personal computers for purposes of the post-graduate course they were currently pursuing.

On whether teachers always searched the internet in order to access teaching content, 61% said they always did so while 39% said they did so only occasionally. Those who searched the internet only occasionally said that they still relied mainly on traditional hard copy text books as a source for teaching content.

47.8% of the teachers who participated in the study said that they had ever used ICT equipment during actual delivery in the classroom while the remaining 51% said they had not used any ICT equipment. When probed further on which ICT equipment teachers used most while teaching, the teachers mentioned their mobile smart phones.

On the use of projectors in teaching, 61% of the teachers said they had never used one and did not know how to use it because neither they nor the schools owned one. Only 4% of the teachers said their schools had projectors while 36% said they had used projectors only during workshops, seminars or presentations during their time of training.

On the use of computers to store and process students' data, 54% said they had never stored or processed students' data on a computer while 40% said they only did so occasionally. Only 6% of the teachers said they always stored and processed students' data on a computer.

Asked whether they used computers to prepare and produce students' reports, 41% of the teachers said they always used computers since their schools possessed a computerized system of producing academic reports. The remaining 59% of the teachers said they still relied on the manual system of producing reports for their students.

Asked about the use of e mail to communicate with their supervisors or fellow teachers at work, only 13% of the teachers said they always used e mail to communicate with their supervisors while 41% said they did so only occasionally. The remaining 46% said they never used email to communicate with their supervisors or fellow teachers at work.

When the teachers were asked about the general attitude among teachers on the use of ICT in teaching and at work, 35% said the attitude was poor while 34% said it was moderate. Only 31% said there was a positive attitude on the use of ICT in teaching and doing administrative work.

On availability of ICT facilities at the workplace, 43% said there were sufficient ICT facilities while 57% said the facilities were insufficient. Meanwhile, 48% of the respondents said the ICT facilities in their schools were readily accessible by students and teachers while 52% said that even the available ICT resources were not readily available to students and teachers. The average computer to student ratio was established to be 13 students to 1 computer.

On the quality of ICT equipment in the schools, 57% of the teachers said the quality of ICT equipment was substandard while 43% said the quality of ICT equipment in their schools was good.

Only 48% of the teachers involved in the study rated availability of electricity in their schools as high while 52% said reliability of power supply was poor.

Discussion, Conclusions and Recommendations

The findings of this study showed that up to 76% of the teachers who participated in the study rated their ICT skills as either low or only moderate. This compares unfavorably with the statistics in the developed world. For example, by 2011, more than half of the EU population had a medium or high level of computer skills.

It is worth noting that the findings of this study showed that the majority of teachers did not have any skills in the use of SPSS to analyse research data. Considering that the participants were post graduate students who are required to research as part of their course requirements, this was a point of concern. It is

recommended that Universities should include data analysis using ICT as part of the course or make proficiency in data analysis using ICT a pre-condition for admission.

It was heartening to note that more than 50% of the teachers said they could use their phones as ICT devices and were able to attend meetings and lectures on zoom. This number however needs to improve further since the use of ICT is inevitably on the increase going forward.

As a matter of urgency, government and institutions need to invest money and efforts to ensure that the attitude of teachers towards the use of ICT in teaching and management keeps improving. In particular, Universities need to ensure that students offering post graduate courses are equipped with skills to enable them use ICT to analyse research data.

Change of attitude needs to go along with creating an enabling environment for teachers to access the necessary technology. This requires acquisition of up to date equipment sufficient for teachers and students, ensuring reliable and sufficient power to run the gadgets and availability of experts to train staff and maintain equipment.

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**ASSESSMENT OF THE EFFECTS OF
FARMYARD MANURE AND
NPK FERTILIZER APPLICATION
ON BANANA YIELDS
IN SHUUKU TOWN COUNCIL,
SHEEMA DISTRICT, WESTERN UGANDA**

J. Kanyesigye¹ : Corresponding Author

E. Ssemakula² : Co-author

Abstract

The Experiment was on the effect of Farmyard Manure and NPK Fertilizer on banana yields in Shuuku Town council, Sheema district. It was guided by three objectives which were, determining the effect of Farmyard Manure and NPK Fertilizer on plant girth, plant height, establishing the effect on leaf and sucker development and also determining hands formation on banana bunches in the 3 selected Sites.

The experiment was set using an incomplete Randomized block design to evaluate the effects of Farmyard Manure and NPK fertilizer on banana yields, with an aim of determining the effect of Farmyard manure and NPK fertilizer on plant girth, plant height, establishing the effect on leaf and sucker development and also determining Hands formation on banana bunches in the 3 selected farms. Each block consisted of 30 banana stools, each farm with 4 blocks, one block cattle manure, another for NPK fertilizer, another one

for a combination of both and the last one as a control in a randomized form.

Data was collected from at least 15 banana stools from each block. Data was used to give conclusions to the experiment objectives. Data was coded, edited and analyzed using SPSS to give meaning. After data processing, it was presented in tables. The researcher recommended the combined application of cattle manure and NPK fertilizers in banana production since they provide different nutrients to the soil hence ensuring increased yields.

The researcher recommended utilization of cattle manure for the average Farmers. For the farmers involved in production of the banana crop, the researcher recommended cattle manure to enhance plant heights for both the maiden plants and suckers.

Key Words: Effects Farmyard Manure, and NPK Fertilizer Application, Banana Yields

Introduction

Banana is one of the most consumed fruits in the world, exploited in most tropical countries, reaching a world production of 70.7 million tons in 2009; Brazil is responsible for approximately 10% of this total. Brazil has around 500 thousand hectares planted with bananas and an annual production of around seven million tons, nearly all of which is destined for the internal market (Brazilian Institute for Geographical Statistics – IBGE, 2009). Producing bananas under an organic system has appeared as an alternative so the final product can reach a whole segment of specific consumers with greater purchasing

powers Brazilian Fruit Year Book (2010), as well as being a means to reduce costs, as chemical Fertilizers have incurred high cost increases over the last few years. In addition, organic fertilization is a more sustainable method of cultivation, creating less impact on the environment.

Even though banana cultivation is of great importance at present to generate income and employment in Shuuku Town Council Sheema District, there is still a shortage of studies related to the use of organic Fertilizer especially Farmyard Manure (cattle manure) for banana nutrition, since the banana crop demands high nutrient inputs and this factor has not always been given due attention, many of the banana producing locations in the Town council have historically been under fertilized, which has led to low production and susceptibility to disease.

Low soil fertility associated with inadequate and inefficient use of fertilizers is one of the most important causal factors of low banana yield in Uganda. Banana yields could be improved by adequate supply of nutrients particularly nitrogen, phosphorus and potassium through fertilizers application. The use of mineral fertilizers by small scale farmers is still limited by their high prices and availability. Therefore more strategies of using farmer available resources are needed to increase yield. These may include incorporation of Farmyard Manure (FYM), Green Manure (GM) and crop residues of high quality into the soil. Therefore the experiment will help to assess the effect of Farmyard Manure and NPK Fertilizer to banana yield in Shuuku Town Council, Sheema District.

According to Uzoma *et al.* (2011), in many developing countries, manure is often considered as important as milk, meat or draught power. Animal manure as a soil amendment and soil conditioner can serve as a low-cost source of organic fertiliser for crop production Okwuagwu *et al.* (2011).

According to Muhereza (2005), cattle manure, either aged or fresh manure is applied prior to crop establishment and by a few farmers in combination with inorganic fertilisers at planting. However, Mazza *et al.* (2010) recommended that fresh manure must be used with caution in the garden because it may contain pathogenic bacteria.

The cumulative effects of negative nutrient balances in SSA are alarming and in the central district of Mukono in Uganda, negative net balances are given. The net annual nutrient depletion was estimated at 68 kg of N, 10 kg of P, and 21 kg of K per ha for the region Muhereza (2012).

Benneh (1997) estimated a lower net loss of about 7 kg N, 1 kg P, and 4.5kg of K per ha of cultivated land in Sub Saharan Africa. Livestock manure can replace soil nutrients; although, concentrations of nutrients vary due to different types of animals, animal weights, diets, livestock production, and nutrients (Hepperly *et al.* 2010).

According to Survey result, (2013), the increase in growth of banana plant was significant at 20 to 30%. Next to the general additional values of harvesting one or more crops, cost savings, savings on chemical fertilizers, and drought resistance, the plant also showed more resistance

to diseases such as Banana Bacterial Wilt and insect pests like banana weevils

Favorable conditions increased the nutrient availability and water holding capacity of the soil resulting in enhanced growth and yield (Rashid *et al.* 2013), Leaf area index (LAI) is a crucial growth in dices determining the capacity of plant to trap solar energy for photosynthesis and has marked effect on growth and yield of plant.

Nitrogen, phosphorous and potassium are essential for good growth of plants. In the study conducted by Agnes *et al.* (2012) observed higher plant heights and leaf numbers obtained could also be attributed to better levels of major nutrients (N, P, and K) in the bio-slurry manure, as reflected by higher nutrient levels in the growing medium at the end of each growing season.

Materials and Methods

Research design

The design was experimental and it was Incomplete Randomized Block Design (IRBD) with each Block having 30 plants but plants systematically was based on those Suckers that have not flowered conducted in Sheema district 2018. Selection was based on areas of the plantation that were in a poor state and deserved rehabilitation. The rehabilitation based on neglected plantations with local banana cultivars that is Enyeru, mbwazirume Kibuzi. The Method of fertilizer application was placement (localized placement) especially where the

young sucker originated from. This is also called Ring Manuring. Farmyard Manure and NPK Fertilizer was placed per banana stool in a marking of plots 30 plants was cattle manure, 30 plants was both cattle manure and NPK fertilizer, 30 plants was NPK fertilizer , and 30 plants was a control with no any application a tall. The same plots were replicated as shown below in an incomplete Randomized block design; this makes a total of 12 plots.

Data Collection

Data was collected using a measuring stick for measuring heights of banana plants, a tape measure for measuring the plant girth. The experiment was based on banana rehabilitation and plants were labeled and tagged for ease in finding while collecting data. The data was taken once every month for consecutive six months from September 2016 to February 2017. However because of un reliable rainfall some selected banana stools delayed to flower which called for an extension period to seven months.

Materials used

Data was collected using a measuring stick for measuring heights of banana plants, and a Tape measure for measuring the plant girth.

Methods of Fertilizer Application

The method of manure preparation was collection and heaping from cattle kraal and covering with grass to avoid nutrient loss through volatilization.

The method of fertilizer application was placement (localized placement) especially where the young sucker originated from. This is also called ring manuring. The researcher used one wheel barrow of properly decomposed cattle manure per banana stool and half wheel barrow and 150 grammes in plots with a mixture of cattle manure and NPK fertilizers.

This is in line with Tirkey *et al.* (2002) who reported that better growth of banana was obtained when inorganic fertilizers 150g NPK per stool was used and 10kgs of Farmyard Manure. The method of fertilizer application was placement (localized placement) especially where the Young sucker originated from. This is also called ring manuring. Farmyard Manure and NPK fertilizer was placed per Banana Stool in a marking of plots 30 plants was cattle manure, 30 plants was both cattle manure and NPK fertilizer, 30 plants was NPK fertilizer, and 30 plants was a control with no any application a tall. The same plots were replicated as shown below in an incomplete Randomized block design; this makes a total of 12 plots.

Rates of application

For cattle manure two tones were used per each site for two plots, that is a plot of cattle manure and one of the mixtures of cattle manure and NPK fertilizers. For cattle

manure at least one wheel barrow has been used per plant. On NPK fertilizers, the total of 7.5kgs per 30 plants at a rate of 250grammes of NPK fertilizers was used alone. For both cattle manure and NPK fertilizer, 10kgs were used on the 30 plants and 4.5kgs of NPK on a mixture respectively.

Experimental layout

Experimental treatments and Layout on three selected sites were randomized as follows

Control	Cattle Manure	Mixture of Cattle manure and NPK	NPK
Cattle Manure	Mixture of Cattle manure	NPK	Control
Control	NPK	Mixture of Cattle Manure and NPK	Cattle Manure

Agronomic Practices

Desuckering, de-trashing, weeding, fertilizer application, staking, pest and disease control management were carried out to maintain the plantation in good order.

3.9 Selected trait parameters for measurement included

Plant Height of the Maiden Sucker
Plant girth of the maiden plant at 100cm
Plant height of the sucker at 50cm
Plant girth of the sucker above 50cm
No. of leaves
No. of Peepers
No. of hands

NOTE: MAIDEN SUCKERS were taken to be suckers above 150 cm but have not flowered.

Sampling Technique

The researcher used simple random sampling for the banana stools in the blocks taking consideration the guard row not to be sampled in the experiment in Shuuku Town Council, Sheema District. For purposes of effectiveness, reliability, and efficiency, the researcher used tags to easily identify the selected plants; each selected stool provided a maiden sucker and a follower where data was collected.

Research Procedure

The researcher received an introductory letter from the head of Faculty of Agriculture, Uganda Martyrs University which were presented to the authorities of Shuuku Town Council, Sheema District Production

Office and the farmer who provided the plantation for setting up another replication requesting for permission to conduct an experiment in the area and on receiving permission from the relevant authorities and the farmer who provided plantation, the researcher proceeded to the three selected sites with banana plantations where the experiment was set.

Data Analysis

Data was collected using prepared paper sheets. It was from randomly selected Banana Stools with un-flowered Maiden Plants from each plot under treatment and the follower. Data coded in an Excel program and analyzed using SPSS Programme and data presented in summarized form in Tables means and standard deviation. The collected data was edited, tabulated, and coded using a computer (SPSS program) to analyze data and came out with reliable findings. After data processing, it was presented in tables for easy interpretation. The researcher then analyzed data using qualitative and quantitative methods whereby mean and standard deviations were generated for easy data analysis and interpretation.

RESULTS: Assessing the effect of Farmyard Manure and NPK to plant girth and plant height

Plant girth of the maiden plant at 100cm

During the observations carried out in different months, plant girth of the median at 100cm differed in accordance

to the different combinations of manure and fertilizers applied in the banana farms. All observed combinations were colonized in the same terms but the plant girth of the maiden at 100cm differed. Results indicated the highest plant girth was observed in all the plots with the mixture of cattle manure and NPK with the average mean of 55.67cm, and the least was observed in the control plot with 50.83cm.

Table 1: Mean of plant girth of the maiden plant at 100 cm

TREATMENT	Mean	N	Std. Deviation	Std. Error of Mean
CONTROL	50.83	315	7.802	0.44
CATTLE MANURE	53.08	315	7.374	0.415
NPK CATTLE MANURE AND NPK	55.67	315	10.175	0.573
<0.001				
P-VALUE				

Source: Field data, 2016/2017

In general, the plant girth of the median sucker at 100cm showed significant improvement when cattle manure and NPK were added, although the response was much lower in NPK alone as compared with that obtained from the treatments of cattle manure. Average mean of the

plant girth of the maiden plant at 100cm under control treatment was 50.83cm.

Further analysis from Anova (appendix ii) indicates that all the combinations of fertilizer and manure were more significant in increasing the plant girth since their corresponding p-values were less than 0.001. These results are in agreement with Vanlauwe and Giller (2006) who pointed out that although organic manures provide a number of nutrients that are essential for plant growth and improve crop yields; this is an indication that the plant girth increased as a result however they are not considered full substitutes for synthetic fertilisers. The combined application of organic inputs and synthetic fertiliser in crop production resulted in synergistic positive effects on crop yield and soil fertility status.

Plant girth of the sucker at 50cm

Plant girth of the follower sucker was also measured to determine the effectiveness of the different combinations of fertilizers on plant girth at different growth rates. Results indicated that plant girth of the follower was higher on plots treated with a combination of cattle manure and NPK than in the sole plots of cattle manure and NPK treatments.

Also the plant girth of the follower sucker was measured at 50cm to get its variation, the results also indicated that the plant girth of the follower at 50cm was high in the plots where a combination of cattle manure and NPK was applied compared to plots where sole fertilizer(NPK) and farmyard manure(cattle manure) were used.

Table 2: Mean of plant girth of the follower sucker at 50 cm

(MEAN ± (SE) OF PLANT GIRTH OF THE FOLLOWER SUCKER AT 50CM ALL FARMS IN CM)

TREATME	Mean	N	Std. Deviatio n	Std. Error of Mean
NT	28.67	315	27.962	1.575
CATTLE				
MANURE	33.73	315	18.174	1.024
NPK	37.73	315	19.599	1.104
CATTLE				
MANURE				
AND NPK	41.16	315	19.216	1.083
P.VALUE	>0.001			

Source: Field data, 2016/2017

The results indicated that the average of 41.16cm were obtained from all the plots of cattle manure mixed with NPK compared to 37.73cm from NPK, 33.73cm from cattle manure and lower results were observed from the control plots (28.67cm). On the basis of these experimental findings, it is indicated that use of organic and inorganic Fertilizers in recommended combinations

can give higher yields than the sole application of either of the fertilizer or manure.

Further analysis from Anova (appendix ii) indicates that the all the combinations of the fertilizer and manure used in different treatments were more significant since their corresponding p-values were less than 0.001 The mixture of organic and inorganic manure raises the contents of the soil hence increasing on the nutrient availability to the plant increasing the plant parameters like plant height and girth in bananas compared to the control plots.

Plant Height

Table 3: Plant height of the maiden plant at (100cm)

**Plant height at
100cm**

TREATMENT	Mean	N	Std. Deviation	Std. Error of Mean
CONTROL	298.97	315	29.613	1.668
CATTLE MANURE	311.44	315	26.144	1.473
NPK	306.48	315	37.158	2.094
CATTLE MANURE AND NPK	322.24	315	33.295	1.876
P. VALUE	p>0.001			

Source: Field data, 2016/2017

Plant height of the maiden plant was also one of the parameters that were measured basing on the different combinations of fertilizers applied to the banana plant.

From the experiment, it was observed that plant height was higher in all sites of the cattle manure combined with NPK. Lower plant height was observed in all sites of the control experiment. Cattle manure alone was effective on increasing the plant height since it was the second with the average of 311.44cm.

Further analysis from Anova (appendix ii) indicates that the all the combinations of the fertilizer and manure used in different treatments were more significant since their corresponding p-values were less than 0.001. The interaction of nitrogen, phosphorus and Farmyard Manures (FYM) also had lower significant effect on plant height next to the control plots. But, treatments that received higher rate of both organic and inorganic fertilizer produced plants with more heights as compared to plants in unfertilized plots.

Research findings from Table 4 below indicate that the average plant height was high in plots of cattle manure combined with NPK. Lower results were obtained in the control plots followed by cattle manure plots. The combination of cattle manure and NPK produced a better increase in height. Further analysis from Anova (appendix ii) indicates that the all the combinations of the fertilizer and manure used in different treatments were more significant since their corresponding p-values were less than 0.001. However, the stage of growth is important, for maiden suckers that have grown beyond 150cm where sole fertilizer is to be used it is ideal to use cattle manure for better results.

**Table 4: Plant height of the follower sucker at 50 (cm)
height of the follower sucker at 50 (cm)**

TREATMENT	N	Mean	Std. Deviation	Std. Error
CONTROL	315	144.65	70.146	3.952
CATTLE MANURE	315	186.35	86.953	4.899
NPK	315	191.73	78.821	4.441
CATTLE MANURE AND NPK	315	219.25	97.389	5.487

Source: Field data, 2017/2018

Assessing the effect of Farmacyard Manure and NPK to leaf and sucker development

During the rehabilitation of the banana plantations, counting of the leaves was done on a monthly basis for continuous seven months, results indicated a positive contribution as a result of a combination of cattle manure and NPK fertilizers of an average of 8.12 leaves higher than all other treatments with the least recorded in the control plots.

Number of leaves of the follower sucker

Number of leaves of the sucker was taken into consideration to determine the extent of leaf development

of a plant when different combinations of the fertilizers are applied and the mean results were recorded in table 5.

Table 5: Number of leaves of the follower sucker

TREATMENT	N	Mean	Std. Deviation	Std. Error
CONTROL	315	6.26	1.907	0.107
CATTLE MANURE	315	7.14	1.472	0.083
NPK	315	7.43	2.144	0.121
CATTLE MANURE AND NPK	315	8.12	2.103	0.118
P.VALUE	P>0.00			

Source: Field data, 2017/2018

Results from the table5 indicate that the highest average number of leaves was observed from the plots of a combination of cattle manure and NPK 8.12 leaves, followed by 7.43 from NPK plots. The combination of cattle manure and NPK was significant to the development and growth of leaves on the banana plants since the average was also higher on different farms of the combined treatment.

However, this disagrees with Agnes *et al.* (2012) who revealed that higher plant heights and leaf numbers obtained could be attributed to better levels of major nutrients (N, P, and K) in the bio-slurry manure, as reflected by higher nutrient levels in the growing medium

at the end of each growing season. He further revealed similar results of higher plant height in treatments with organic P fertilizer (Organic) compared to control plants, which was attributed to the ability of phosphorus to enhance early plant growth.

These favorable conditions increased the nutrient availability and water holding capacity of the soil resulting in enhanced growth and yield (Rashid *et al.* 2013), Leaf Area Index (LAI) is a crucial growth in dices determining the capacity of plant to trap solar energy for photosynthesis and has marked effect on growth and yield of plant.

Table 6: Number of peepers

TREATMENT	Mean	N	Std. Deviation	Std. Error of Mean
CONTROL	0.91	315	1.431	0.081
CATTLE MANURE	1.45	315	1.181	0.067
NPK	1.40	315	1.681	0.095
CATTLE MANURE AND NPK	1.32	315	1.322	0.074
P.VALUE	P>0.001			

Source: Field data, 2017/2018

Results indicated higher average numbers of peepers in the different plots of cattle manure with an average of 1.45 peepers better than NPK which presented an average of 1.40 peepers in sole treatments alone. But the number of peepers varied depending on the banana clone. Results did not show better results in a combination of cattle manure and NPK in relation to sucker development.

Assessing the effect of Farmyard Manure and NPK fertilizer application to hands formation on banana bunches

Table 7: Number of hands at flowering

TREATMENT	N	Mean	Std. Deviation	Std. Error
CONTROL	45	6.73	1.304	0.194
CATTLE MANURE	45	7.67	0.853	0.127
NPK	45	8.89	1.418	0.211
CATTLE MANURE AND NPK	45	8.09	1.328	0.198
P-VALUE	P>0.001			

Source: Field data, 2016/2017

Results indicated that on average the plants in the plots with NPK performed better with the highest number of hands, this is an observation in all the three farms with an average of 8.89 hands were analyzed. This is because

the synthetic fertilizers are easily taken up by plants when applied than organic manures (cattle manure) that require more time to decompose. In the plots of cattle manure and NPK, numbers of hands were at an average of 8.09 hands. It was observed that numbers of hands were higher in the plots of NPK. The positive response on the cattle manure and NPK hands formation differed with a lower significant different.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The main aim of this study was to assess the effects of Farmyard Manure and NPK fertilizer application on banana yields in Shuuku Town Council Sheema District. The results obtained in this study show that:

Objective one assessed the effect of Farmyard Manure and NPK to plant girth and plant height as a contribution to proper growth.

Results indicated that better results were obtained on a combination of cattle manure and NPK on the plant girth of both maiden and follower sucker as it was observed on increased banana pseudo stems within a combination of cattle manure and NPK treatments.

The research results indicate that there was an increase in plant height of both maiden suckers and follower suckers with combination of cattle manure and NPK fertilizers. However cattle manure produced better results on plant height of the follower sucker than NPK in sole treatment. This is because the residual effect of cattle

manure lasts for a longer period than synthetic fertilizers in the soil hence providing the required nutrient to the follower plant than the maiden sucker. This experiment therefore concludes that to achieve an increased pseudo stem size and plant height that can support a reasonable size of the bunch of the banana throughout the growing period, use of a combination of cattle manure and NPK fertilizer is an ideal option.

Assessing the effect of Farmyard Manure and NPK to leaf and sucker development.

Results indicated that there were an increase in the number of leaves in a combination of cattle manure and NPK fertilizers than in sole treatments. This is because the combination provided different nutrient requirements that stimulated the growth and development of more leaves.

Also results from the experiment indicate that there was high development of the peepers at an average of 1.45 with cattle manure application. This is an indication that when cattle manure is well prepared and applied in the recommended rates, peepers can emerge early enough and establish the plantation which ensures sustainable production throughout the production cycle.

Therefore this research concludes that application of a combination of cattle manure and NPK fertilizer increases the number of leaves and the number of peepers on the banana stool.

Objective three assessed the effect of Farmyard Manure and NPK fertilizer application to hands formation on banana bunches.

Results indicated an increase in the number of hands in farms treated with NPK fertilizers. Hands increase with

the recommended rates of application of NPK fertilizer when applied in the onset of the rains.

This experiment therefore concludes that application of NPK fertilizer leads to hands formation and bunch size development.

General Conclusion

The above study show that both mineral fertilizers and organic manures have their own roles to play in soil fertility management but none can solely supply all the nutrients and other conditions of growth for producing banana yields. Increased growth and yield parameters in this study may be associated with the supply of essential nutrients by continuous supply of a combination of mineral fertilizers and farmyard manures. Therefore enhanced inherent nutrient supplying capacity of the soil and its favorable effect on soil physical and biological properties depends majorly on the different nutrient components that are present in the different types of fertilizers and hence a combination should be used during production in order to have increased banana yields. For this study therefore a combination of cattle manure and NPK was effective in improving banana yields.

Recommendations

Objective one assessed the effect of Farmyard Manure and NPK to plant girth and plant height as a contribution to proper growth.

Results findings indicated that better results were obtained on a combination of cattle manure and NPK

fertilizers in increasing the size of the pseudo stem and plant height. The combined application of organic and inorganic Fertilizers should be recommended in banana production provide different nutrients to the soil hence ensuring increased yields.

This study recommends that a combination of cattle manure and NPK should always be used in banana plantation management especially in rehabilitation where the plantation has been neglected.

For the farmers involved in production of the banana crop, they should use cattle manure to enhance plant heights maiden suckers where a single fertilizers to be used in a pure application.

Plant girth of the Banana crop tends to increase when a combination of cattle manure and NPK is used and therefore basing on the results of this particular experiment, banana farmer in farming business should use a combination of cattle manure and NPK for better yields.

Assessing the effect of Farmyard Manure and NPK to leaf and sucker development,

Result findings indicated that the number of leaves can be obtained in a combination of fertilizers especially cattle manure and NPK fertilizers as results showed an increase of more than one leaf. Results further indicated an increase in the number of peepers.

This study recommends that farmers should adopt a combination of cattle manure and NPK fertilizers in order to increase banana leaves as they contribute a lot to hands formation and bunch size. For farmers whose plantations were destroyed by BBW, in order to rehabilitate their plantations they should apply a combination of cattle

manure and NPK so that banana suckers can grow vigorously and cover up gaps.

For farmers intending to increase the number of planting materials NPK fertilizer can also be applied as it immersed second in increasing the number of peepers.

Assessing the effect of Farmyard Manure and NPK fertilizer application to Hands formation on banana bunches.

Results indicated better results with a single application of appropriate quantities of NPK especially in increasing in the number of hands.

This study recommends that farmers and all stake holders in banana plantation management should use a combination of cattle manure and NPK fertilizers for balanced results

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**UNDERSTANDING THE ASSOCIATION
BETWEEN CATTLE TICK-BORNE DISEASES
AND CLIMATE VARIABILITY
IN MBARARA DISTRICT,
WESTERN UGANDA**

Everline T. Komutunga

National Agricultural Research Organisation, Uganda

Jane Bemigisha

International Institute for Geo-Information Science
& Earth Observation

Mwebembezi William

Bishop Stuart University, Mbarara – Uganda

Abstract

A study to examine the association between tick - borne diseases and climate variability in cattle keeping communities in Mbarara district in South in Western Uganda was undertaken aiming at inputting into the tactical and strategic control of the diseases in the largely livestock dependant region in the country. In a multi-sectoral priority setting exercise, tick borne diseases was top on the list of constraints responsible for cattle mortality and reduced productivity. A clinical tick- borne disease data analyzed basing on standard microscopic procedures, including capillary

agglutination test and giemsa stain, was obtained from Mbarara veterinary clinic.

The disease data was matched with rainfall data from 27 rain gauge stations obtained from National meteorological stations and recording centers scattered within the district covering a period of 56 years since 1950. The number of wet spells and disease cases showed that disease cases were positively correlated with rainfall at a 95% confidence level ($R^2=0.56$). Disease cases exhibited peak cyclical patterns related to rainfall during the transmission season during October, November and December with extreme peaks occurring every other year while Significant ($r=0.536$) variability was observed for the positive trend in March - April -May seasonal rainfall for one of the three zones. Additionally, the results in this study indicate that rainfall is a substantial determinant of seasonal activity of the transmitting vectors from season to season and from year to year.

Key words: *cattle tick-borne diseases, climate variability*

Introduction

The influence of climate variability/change on the spread of cattle-tick-borne diseases is an issue of global importance. What appears to be relatively minor variability can have dramatic effects on the incidence and epidemiology of diseases if this change removes the barrier for disease transmission. As a result, the effect of climate can be considered to be nonlinear and punctuated by sudden transition from absence to presence of the

disease, depending on the factors influencing incidence, particularly in highly susceptible animal populations devoid of immunity.

In order to address the influence of current climate variability on occurrence of tick-borne diseases, this study examines the associations between tick-borne diseases and climate variability in a cattle keeping community of Mbarara district, western Uganda.

During a multi-stakeholder participatory research priority-setting exercise for this community, for whom keeping livestock is the leading economic enterprise and source of livelihood, cattle-tick-borne diseases were implicated as the first-priority constraint causing cattle mortality and loss in productivity.

In addition, participants attributed an increased occurrence of tick-borne diseases to current highly variable climate/weather patterns experienced throughout the district. Due to inadequate scientific articulation and lack of understanding of climate variability signals in the climate parameters, on one hand, and the signals' associations with cattle-tick-borne diseases incidence, on the other, climate information is not included in decision-making relating to the control of cattle-tick diseases.

This information is an essential input into the tactical and strategic control of the disease. Articulation of climate change signals in the climate parameters would help in monitoring the frequency of occurrence and epidemiology of cattle-tick-borne diseases in the district. Existing disease-control policies do not pay sufficient attention to the complex interactions between climate, cattle disease, socioeconomic conditions and livelihoods. Yet, nearly all poor and vulnerable people in

Mbarara district derive livelihoods from cattle keeping and ecosystem goods and services based on rainfall, and the people are highly vulnerable to any variability/changes in climate.

The main knowledge gap is articulating the link between cattle diseases and climate variability and change. Limited research results on the association between climate change and tick-borne diseases has hindered integrating climate information into policy formulation.

This paper examines variability trends in rainfall over the past 56 years. The authors apply statistical methods to analyze the dynamics of wet spells and how they favor disease transmission. Retrospective microscopically proven cases of tick-borne diseases, differentiated by breed for the period 1991-2006, were used to generate detailed information on cattle--tick-borne diseases. The two data sets were analyzed for associations as a starting point for developing climate-adaptive disease-control strategies.

Materials and Methods

Study Area

The study was conducted in Mbarara district, western Uganda (Figure 1), which covers an area of approximately 10,500 km². Mbarara district has the greatest number of cattle in the country, over 1,200,000 head of cattle, with over 30% of these being exotic animals and cross breeds with low immunity. (District Veterinary Reports).

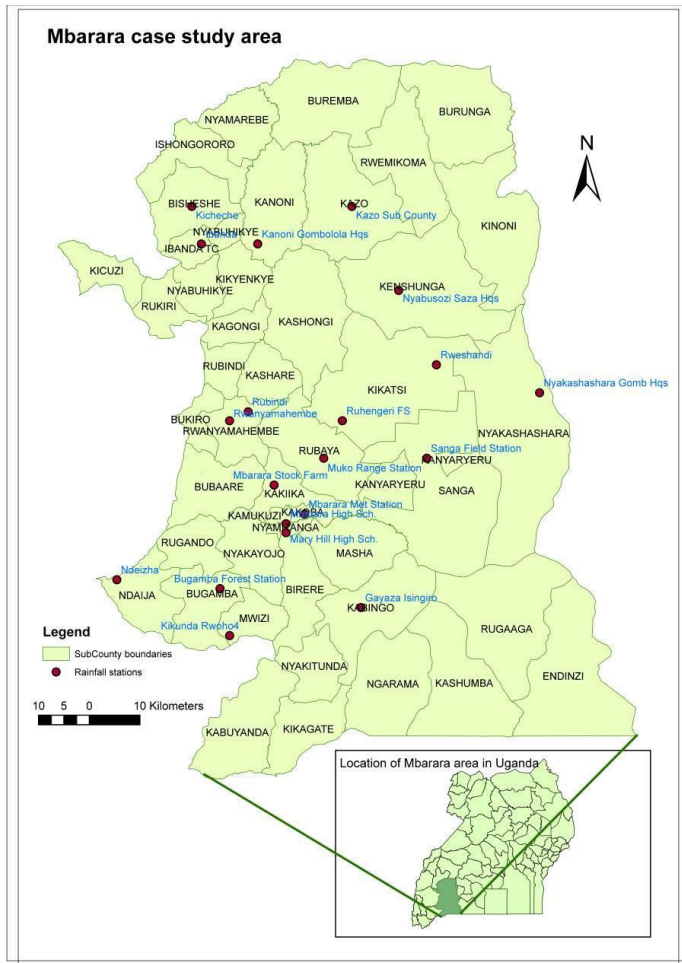


Figure 1: Location of Mbarara Case Study Area

Clinical tick-borne disease data were obtained from the Mbarara Veterinary Clinic that serves the whole South-Western region since 1991. The background of the data collection reveals that the data samples were taken

from animals in advanced stages of the disease. Where a problem was widespread to the whole herd, specimens were taken from more than one diseased animal and attempts were made to avoid contamination of the samples.

The sample-identification routine included the name of the farmer and his address, animal description including age, sex and breed, duration of the condition or outbreak, mortality rate, number of animals affected, clinical signs observed, treatment history, clinical diagnosis, change in feeding regimes, possibility of contact with neighboring animals, and type of preservation used on the specimen prior to or en route to the laboratory. All samples were analyzed using standard microscopic procedures, including a capillary agglutination test and geisma stain.

Rainfall data for 27 rain gauge stations scattered within the district for the period 1950-2006, were obtained from the National Meteorological Service and from the recording sites within the district.

Statistical Methods

Homogenous zones were delineated from a network of 27 rainfall stations for the period 1950-2006 using a ward-clustering method and Principle Component Analysis (PCA) statistical procedures. Both procedures are mathematical methods used to uncover relationships among many variables and to reduce the amount of data needed to define the relationships. The sums of squares of the coefficients of variation from the statistical solutions (communality) were used to determine representative

rainfall stations within the homogenous zones. Analysis of the time series revealed trends within rainfall and these trends were used as a basis to define modes of climate variability.

Data relating to microscopically proven cases from homogenous zones, and corresponding rainfall variability data from the representative rainfall station in that zone, were used to test for associations using nominal logistic analysis odds ratio.

Results

Time Series Analysis

The results of statistical analysis of the rainfall time series showed three homogenous zones delineated in the district. Zone one comprising of northeastern parts, zone two the northwestern, western and central parts while zone three had parts of eastern and southeastern. Representative stations for the three respective zones were Nyakashashara, Rubindi and Mbarara Metrological Station.

The Mbarara Met station time-series analysis for the October-November-December (OND) season revealed a tendency for slightly increased rainfall, while the March-April-May (MAM) season showed a slightly decreasing trend. On the other hand, June-July-August (JJA) seasonal rainfall shows a normal 10-year cyclical trend, with the period corresponding to the tick data manifesting in a lower than normal rainfall cycle. Significant ($r^2=0.536$) variability was observed for the positive trend in MAM seasonal rainfall for the Nyakashashara zone. In addition,

the OND time series trend shows a slight tendency of decreasing rainfall at this location.

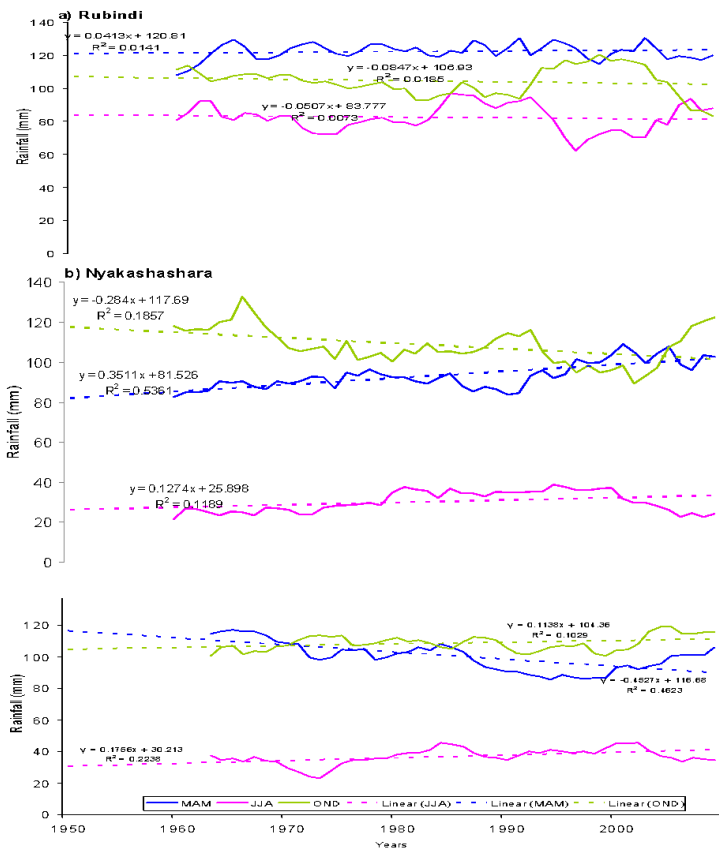


Fig 2: Seasonal Trends for the 10-Year Moving Average for Homogenous Zones in the Mbarara District

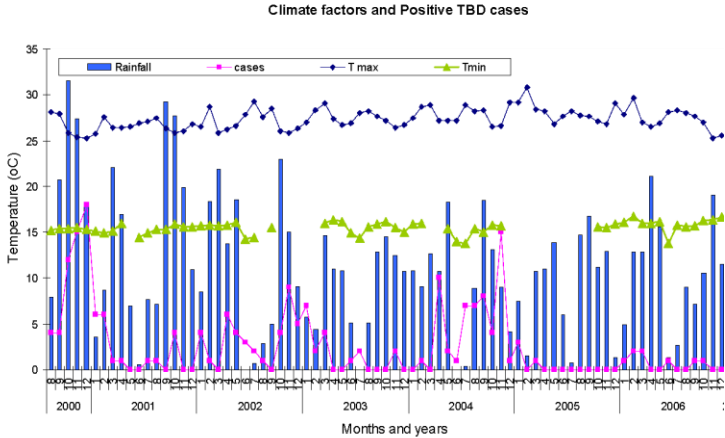
The period corresponding to the tick data however shows lower rainfall. The zone represented by Rubindi station exhibits a tendency for decadal variability in the JJA and OND seasons, with the period corresponding to the tick record wetter for JJA and drier for OND season. The MAM season at this location is much more unstable (see Figure 2).

Association Patterns between Disease Cases and Rainfall

Results from multiple regression analysis of a combination of rainfall at lag-month three and lag-month two, the number of wet spells and disease cases showed that disease cases were positively correlated with rainfall at a 95% confidence level ($R^2 = 0.56$). The time-series display of disease cases and rainfall are shown in Figure 3 below.

Disease cases appeared to exhibit peak cyclical oscillations related to rainfall during the transmission season, OND, with extreme peaks occurring every other year. The absence of a peak in disease incidence in the last two years could be a result of the persistently dry conditions during the December to January period of 2004-2005 and the accompanying very high maximum temperatures. These conditions may have not favored survival of the vector life stages occurring at that time, hence a lag in population buildup.

Figure 3: Climate Factors and Positive TBD Cases



Discussion

Tick-borne-disease cases showed a positive correlation with rainfall. In addition, the odds of having a disease case on a rainy day was significant $P=0.05$. Field studies show a distinct seasonal activity pattern for *R. appendiculatus* adults, with the number of ticks on host animals increasing markedly with the onset of the rain, remaining high throughout the wet season, and decreasing to very low levels during the dry season (Kaiser *et al.*, 1991; McCulloch *et al.*, 1968; Minshull and Norval, 1982; Mulilo, 1985; Pegram *et al.*, 1986;). Since this tick is the vector of the tick-borne disease theileriosis, caused by *T. parva*, the pattern of disease incidence from the results is agreeable with results from previous studies.

Fluctuations in population density are not wholly explained by differences in rainfall; however, other factors such as temperature, photo-period, vegetation

cover, host availability, host susceptibility or resistance to ticks, types of husbandry, crops, and density of human population have also been suggested (Short and Norval, 1981a; Yeoman, 1966).

Rechav (1981) proposes that environmental humidity regulated population density by controlling survival, while long-day photo-period determined seasonal activity. Recent experimental studies have established that the activity of *R. appendiculatus* adults in the field is regulated by the combined influence of temperature and humidity (Punyua *et al.*, 1984, 1985a), with quiescent adults being activated by rainfall (Short and Norval, 1981b). Short and Norval (1981) introduced a model in which the joint influence of humidity, temperature and photo-period determined the climatic conditions necessary for adult *R. appendiculatus* activity; their model successfully predicted observed activity periods in eight African localities.

The results in this study indicate that rainfall, while not the only factor influencing disease incidence patterns, particularly during the transmission season, is a substantial determinant of seasonal activity of the transmitting vectors from season to season and from year to year. This information is useful in designing control strategies.

ACKNOWLEDGEMENT

The author thanks the director and coordinator of the Nile Basin Research Program for supporting this study, the staff of the Mbarara Veterinary Department for availing the data on disease cases, and the director Mbarara ZARDI and the director General NARO, Uganda, for permission to conduct the study.

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**THE RELATIONSHIP BETWEEN
MANAGEMENT OF THE U.S.E. PROGRAM AND
ESTABLISHMENT OF
PRIVATE SECONDARY SCHOOLS
IN IBANDA MUNICIPALITY**

**Vicent Nuwagaba^{1,2*},
Gershom Atukunda^{1,3},
Florah Kyayemagye^{1,2}**

¹Bishop Stuart University.

²Faculty of Education.

³Faculty of Business, Economics, and Governance.

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* Vicent Nuwagaba: Corresponding Author

Email: nuwagabavicent6@gmail.com

Abstract

The study assessed the relationship between management of the USE program and establishment of private secondary schools. The study employed across-sectional design by which data was collected basing on what is going on at the particular point of time. The study population included MEO, parents, inspectors, head teachers and teachers. A sample size of 344 respondents participated in the study, quantitative data was analyzed using descriptive statistics formulae provided by the statistical packages for social science SPSS v.16. Also the independent variable was correlated with dependent variable using Pearson

correlation. The statistical package for social scientists (SPSS 22.0) were used in the analysing of data.

The study found out that there is a high positive significant relationship between management of the USE program and establishment of private secondary schools in Ibanda Municipality at $P=0.002$ at level of significance 0.01, $r = 0.878$. It was further concluded that there is a high positive significant relationship between management of the USE program and establishment of private secondary schools in Ibanda Municipality. Management of the use program is responsible for the establishment of private secondary schools in Ibanda Municipality. It was recommended that the government should conduct effective supervision of universal secondary schools to improve the effectiveness of USE program. The government should set the limit of fees for students in private schools to enable all parents who have children in private schools afford the fees.

Key Words: Management, USE program, establishment, private secondary schools

Background

The key concepts within this study are Universal Secondary Education Management and private school establishment. According to the Education Act (2008) Universal Secondary Education means the state funded universal secondary education programme which was introduced in 2007 to provide obstacle free post primary education by allowing eligible students to attend

government USE secondary school without paying school fees and Parent Teacher Association (PTA) fee.

The programme is implemented through Government subsidies to USE public secondary school in the form of teacher salary, capitation grant and infrastructure subsidy. At the same time, it is implemented through a Public-Private Partnership where an owner of private secondary school can have partnership with government and allow eligible students to study in lower secondary education with state funding (Epstein *et al*, 2018). The introduction of this program therefore divided the secondary schools in Uganda into purely private schools, private schools under the Public-Private Partnership and the Government USE schools.

Establishment of private schools refers to the rate at which private schools have been established after the introduction of the USE programme. This is indicated by the number of schools that have been established, number of students enrolled, number of teachers recruited, characteristics of the founders and sustainability of the schools in terms of persistence. Therefore, the study is interested in the trends after the introduction of USE

Since the liberalization of the education sector in 1993 to allow for private actors to supplement government efforts to provide education, the Ugandan government has actively supported the establishment of private schools. The government launched the USE programme to provide obstacle free secondary education by waiving the payment of school fees in USE schools. This increased access to secondary education by increasing net enrolment and the transition rate to S1 but studies show that in areas where there was high USE

program intensity, the number of the private schools rose rapidly and many students were transferring from USE schools where education was cheap to private schools with apparently higher fess bills. For example, by 2013, 66% of schools at secondary level were private and the private secondary school enrolment as a percentage of total enrolment was 51.0% (Epstein *et al*, 2018).

In the National Development Plan, the government aims at private sector led growth while The National Public-Private Partnership framework provides that public and private actors should work together to improve education service delivery. However, this partnership should not be putting USE schools at a competitive disadvantage against the private schools.

In Ibanda Municipality, many private schools have sprung up since the launching of the USE program in 2007. The District Education reports (2018) shows that from the start of the USE program, 9 private schools have been established in Ibanda Municipality. These schools charge higher fees than the USE schools but they have been drawing most of their students from the USE schools. This has not only reduced numbers in USE schools but also exposed the parents to higher costs of education.

A review of past literature by Afuberoh & Okoye (2014) shows that there is strong evidence that teaching is better in private schools than in state owned schools and the perceived better quality in private schools is a key factor in parents' choice of private schools. However, there is low evidence to show that parents are switching to private education because they are getting economically better. Where children of poorer households

do attend private schools, research indicates that welfare sacrifices are made and continued attendance is difficult to sustain. This has necessitated this study to examine the relationship between the USE program and the trend in establishment of private secondary schools in Ibanda Municipality, Ibanda District. Therefore, the study is intended to relate universal secondary school management and the establishment of private schools in Ibanda Municipality.

Purpose of the Study

The purpose of the study was to examine the relationship between management of the USE program and establishment of private secondary schools in Ibanda Municipality.

Theoretical Review

The study was based on Milton Friedman's Theory of School Choice (Friedman, 1955). This theory was first introduced by Friedman in the United States to explain the relationship between state liberalization of education, competition between private and public schools and parents' choice of schools for their children. The model includes liberalizing education so that private schools run side by side the public schools. As more schools enter the market, competition increases resulting in more educational options from which parents can choose. Competition for learners would lead to overall quality in education as parents select the schools that met their quality preference.

This theory has implications for this study because it explains parental preference for private schools despite the subsidized education under the USE schools. Parents assume that payment for education goes hand in hand with quality and here there is the so called free education there is no effort to provide good quality. Parents therefore take their bright children to the private schools, leaving the weak ones in public schools. This compromises quality in the USE schools, leading to more learners being diverted to the private schools where quality is seen as being better.

Literature Review

Empirical studies' literature shows that even under the USE management, the remaining private costs of education are still impediments for enrolment and equality in the quality of education (Akaguri, 2014). The USE management normally subsidizes tuition fees only, leaving other direct and indirect costs to be borne by parents and families. Thus, the equality and equity of education remain as a concern under the USE management. The empirical evidence also challenges the adequacy of the cost intervention. Some studies argue that the unit costs of schooling at a given quality for marginalized populations can be quite different from those for non-marginalized groups (Milner & Tenore, 2010). Established private schools in Ibanda municipality, Ibanda district should charge less fees for marginalized students.

A study carried out in Kenya, revealed that official fee-abolition did not affect the enrolment of the nomadic population because it was simply served by spontaneous

‘bush’ schools, and largely funded through contributions in kind (Milner & Tenore, 2010). A more recent study also finds that public policies that promote the expansion of primary education tend not to benefit the poor (Cantillon, 2011). These empirical studies indicate the importance of considering the adequate costs of schooling for different groups to maintain vertical and horizontal equity. The case of Uganda provides us with a unique opportunity to examine the effect of USE.

Lubienski & Lubienski (2013), study shows private schools students’ school life satisfaction is higher than students in public schools. This finding indicates a correlation between the satisfaction index and types of schools. The amount of investment per student by private schools is higher than public schools. World Bank’s study (2012) shows that expenditure per student is \$516 in public secondary schools and \$1,524 in private secondary schools, \$876 in public high schools and \$1,587 in private high schools.

Due to the advantages of private schools overall performance of students is higher compared to students in public schools. In terms of academic and social performance private schools in Turkey are generally among the highest-ranking institutions. Private school students perform better in nationwide exams. Science Olympics and international competitions and exams (Dag, 2015). Among 1 million exam takers in 2009 exam first ten students with highest scores were from private schools.

Private schools also rank high in terms of school averages. 100 highest- ranking schools are private (Dag, 2015). Performance of private schools is higher than

private and public schools in OECD countries. Private schools are also prominent in sports competitions. In recent years private schools have been winners of Turkish championships and represent Turkey in international sports events (Dag, 2015).

Findings showed higher job satisfaction among private primary school teachers. The mean of total scores of the private primary school and public school teachers is respectively 156,82 and 128,05. Depending on these findings it may be inferred that private school teachers also perform better in terms of productivity. Private schools also have the liberty to hire teachers conforming to their own standards, which is not the case for public schools.

Students of private schools are generally of higher socioeconomic standards. The above study indicates that private schools rank high in terms of school averages, however the current study suggests that in USE management, there is instruction management, promotion policy, control over teachers, disciplining of teachers and teacher recruitment practices.

Methodology

The study employed cross-sectional design. The study employed quantitative and qualitative approaches in collecting data from field. The study population included MEO, parents, inspectors, head teachers and teachers. A sample size of 344 respondents which was determined using Krejcie and Morgan (1970) formula. This study employed questionnaire and interview methods on collecting data from field. Data was analyzed using

descriptive statistics formulae provided by the statistical packages for social science SPSS v.22. The analyzed results were tabulated appropriately using graphs, charts, and frequency distribution and sample percentages to illustrate the responses to the questionnaires. Also the independent variable was correlated with dependent variable using Pearson correlation.

Results of Universal Secondary Education Management in Ibanda Municipality

Table 1: Frequencies, Percentages and Means for Universal Secondary Education Management in Ibanda Municipality

Responses	F/ %	1	2	3	4	5	Mean score
My school does not charge school fees	F %	24 8.0	4 8.0	36 12.0	12 0.3	04 4.7	3.83
My school charges lower fees than in private schools	F %	14 4.7	15 5.0	24 8.0	0 6.7	67 5.7	4.24
Students are enrolled centrally from the government selection process	F %	32 0.8	47 5.6	35 1.6	6 8.8	30 3.2	3.68
Teachers are posted by the government to the school	F %	14 0.8	30 0.0	20 0.8	42 7.2	4 1.2	3.91
	F	46	32	42	02	08	3.45

My school recruits teachers privately	%	5.2	0.8	4.0	4.0	6.0	
Teachers lesson attendance is regular	F	52	44	30	00	04	
	%	7.2	4.8	0.0	3.2	4.8	3.33
Teachers offer remedial lessons at this school	F	2	2	8	80	08	
	%	.7	.7	.7	0.0	6.0	4.30
Students are promoted on merit	F	58	44	47	7	4	
	%	9.2	4.8	5.6	2.4	8.0	3.15
Head teachers determine who will be employed here	F	97	44	47	8	4	
	%	32.3	14.7	15.7	9.3	8.0	2.76
Class sizes are average at this school	F	2	2	16	80	00	
	%	0.7	0.7	5.3	0.0	3.3	4.25
The parents participate fully in school programs	F	46	32	78	02	2	
	%	15.3	10.7	26.0	4.0	4.0	3.21
Teachers performance is closely monitored at this school	F	32	47	65	6	00	
	%	10.7	15.7	21.7	8.7	3.3	3.48
Students are promoted on merit	F	14	15	24	67	0	
	%	4.7	5.0	8.0	5.7	6.7	3.95

(Source: Field Data, June, 2019):

1=Strongly Disagree, 2=Disagree, 3=Undecided, 4=Agree, 5=Strongly Agree

As regards to whether My school does not charge school fees, 112 (37.3%) of the respondents agreed, 104 (34.7%) strongly agreed, 36 (12.0%) undecided, the mean = 3.83 was close to code four which on 5-likert scale used to measure items corresponding agree, therefore the study suggests that government schools don't charge school fees. As regards to whether government school charges lower fees than in private schools, 167 (55.7%) strongly agreed, 80 (26.7%) agreed, 24 (8.0%) undecided. The mean = 4.24 was close to code four which on 5-likert scale used to measure items corresponding agree, therefore the study suggests that government school charges lower fees than in private schools hence parents go to private schools where they charge higher fees but with good performance.

This has facilitated the establishment of private schools in Ibanda Municipality. With respect to whether students are enrolled centrally from the government selection process, 130 (43.2%) of the respondents strongly agreed, 56 (18.8%) agreed, 47 (15.6%) disagreed.

The mean = 3.68 was close to code four which on 5-likert scale used to measure items corresponding agree, therefore the study suggests that Students are enrolled centrally from the government selection process. With respect to whether teachers are posted by the government to the school, 142 (47.2%) of the respondents agreed, 94 (31.2%) strongly agreed, 30 (10.0%) disagreed.

The mean = 3.91 was close to code four which on 5-likert scale used to measure items corresponding agree, therefore the study suggests that teachers are posted by the government to the school, however these teachers do not report but in private schools teachers are always there in

big number because of the good pay hence the establishment of more private schools in Ibanda municipality.

As regards to whether school recruits teachers privately, 102 (34.0%) agreed, 78 (26.0%) strongly agreed, 46 (15.2%) strongly disagreed. The mean = 3.45 was close to code three which on 5-likert scale used to measure items corresponding undecided, therefore the study suggests that school recruits teachers privately. As regards to whether teachers lesson attendance is regular, 100 (33.2%) agreed, 74 (24.8%) strongly agreed, 52 (17.2%) strongly disagreed.

The mean = 3.33 was close to code three which on 5-likert scale used to measure items corresponding agree, therefore the study suggests that teachers lesson attendance is not regular. As regards to whether teachers offer remedial lessons at this school, 180 (60.0%) agreed, 108 (36.0%) strongly agreed, 8 (2.7%) undecided.

The mean = 4.30 was close to code four which on 5-likert scale used to measure items corresponding agree, therefore the study suggests that teachers offer remedial lessons at this school. This has facilitated the establishment of private schools because these remedial lessons motivate teachers to work hard hence improvement in academic performance which makes parents to prefer private schools than government schools.

On item about whether students are promoted on merit, 97 (32.4%) of the respondents agreed, 58 (19.2%) strongly disagreed, 54 (180%) strongly agreed. The mean = 3.15 was close to code three which on 5-likert scale used to measure items corresponding undecided, therefore the study suggests that students are rarely promoted on merit.

Whether Head teachers determine who will be employed here, 97 (32.3%) strongly disagree, 58 (19.3%) agreed, 54 (18.0%) strongly agreed. The mean = 2.76 was close to code three which on 5-likert scale used to measure items corresponding undecided, therefore the study suggests that Head teachers rarely determine who will be employed in schools hence establishment of private schools.

Class sizes are average at this school, 180 (60%) of the respondents agreed, 100 (33.3%) strongly agreed, 16 (5.3%) undecided. The mean = 4.25 was close to code four which on 5-likert scale used to measure items corresponding agree, therefore the study suggests that class sizes are average at this school. Whether the parents participate fully in school programs, 102 (34.0%) agreed, 78 (26.0%) undecided, 46 (15.3%) strongly disagreed. The mean = 3.21 was close to code three which on 5-likert scale used to measure items corresponding undecided, therefore the study suggests the parents rarely participate fully in school programs hence the establishment of more private schools than government schools.

As regards to whether teachers performance is closely monitored at this school, 100 (33.3%) strongly agreed, 65 (21.7%) undecided, 47 (15.7%) disagreed. The mean = 3.48 was close to code three which on 5-likert scale used to measure items corresponding undecided, therefore the study suggests the teachers performance is rarely closely monitored at this school. As regards to whether students are promoted on merit, 167 (55.7%) of the respondents agreed, 80 (26.7%) strongly agreed, 24 (8.0%) undecided.

The mean = 3.95 was close to code four which on 5-likert scale used to measure items corresponding

undecided, therefore the study suggests students are promoted on merit which leads to better academic performance hence the establishment and development of more private in Ibanda Municipality.

The above study findings imply that government does not allow head teachers to charge more school fees in government schools, teachers are recruited on merit unlike private schools however there are inadequate teachers on government payroll even those who are on pay roll don't have enough time for the school in order to cater for the low achievers. This has contributed to the establishment of private schools Ibanda Municipality Ibanda District.

Establishment of Private Secondary Schools

Findings presented in table 4.3 above indicates the teachers' responses regarding to Universal Secondary Education management in Ibanda Municipality. That is with respect to whether teachers are recruited on merit, 111 (37.0%) agreed, 104 (34.7%) strongly agreed, 37 (12.3%) undecided. The mean = 3.82 was close to code four which on 5-likert scale used to measure items corresponding agree, therefore the study suggests that Teachers are recruited on merit. With regard to whether students are recruited according to performance, 111 (37.0%) were undecided, 104 (34.7%) strongly agreed, 50 (16.7%) agreed.

The mean = 3.69 was close to code four which on 5-likert scale used to measure items corresponding agree, therefore the study suggests that students are recruited according to performance. As regards to whether

teachers' attendance is regular, 130 (43.3%) strongly agreed, 57 (19.0%) agreed, 46 (15.3%) disagreed. The mean = 3.69 was close to code four which on 5-likert scale used to measure items corresponding agree, therefore the study suggests that teachers' attendance is regular.

Table 2: Frequencies, Percentages and Means for Universal Secondary Education management in Ibanda Municipality

Responses	F/%	1	2	3	4	5	Mean score
Teachers are recruited on merit	F %	24 8.0	24 8.0	37 2.3	111 37.0	104 4.7	3.82
Students are recruited according to performance	F %	15 5.0	20 6.7	11 0.0	50 16.7	104 4.7	3.69
Teachers' attendance is regular	F %	32 10.7	46 15.3	5 1.7	7 19.0	30 43.3	3.69
Student attendance is regular	F %	14 4.7	30 10.0	0 0.0	42 47.3	84 28.0	3.84
Teachers provide remedial teaching	F %	46 15.3	32 10.7	2 4.0	102 34.0	78 26.0	3.45
Student assessment is regular	F %	52 17.3	44 14.7	0 0.0	100 33.3	74 24.7	3.33
Academic performance is good	F %	2 0.7	2 0.7	8 0.7	180 60.0	108 36.0	4.30
Parents prefer taking children to private schools	F %	57 19.0	47 15.7	5 5.0	97 32.3	54 18.0	3.15

Parents can afford school dues at this school	F	45	47	7	97	54	
	%	15.0	15.7	9.0	32.3	18.0	3.23

(Source: Field Data, June, 2019)

1=Strongly Disagree, 2=Disagree, 3=Undecided, 4=Agree,5=Strongly Agree

With respect to whether student attendance is regular, 142 (47.3%) agreed, 84 (28.0%) strongly agreed, 30 (10.0%) undecided. The mean = 3.84 was close to code four which on 5-likert scale used to measure items corresponding agree, therefore the study suggests that student attendance is regular. With respect to whether teachers provide remedial teaching, 102 (34.0%) agreed, 78 (26.0%) strongly agreed, 46 (15.3%) strongly disagreed. The mean = 3.45 was close to code four which on 5-likert scale used to measure items corresponding agree, therefore the study suggests that teachers provide remedial teaching.

With regards to whether student assessment is regular, 100 (33.3%) agreed, 74 (24.7%) strongly agreed, 52 (17.3%) strongly disagreed. The mean = 3.33 was close to code three which on 5-likert scale used to measure items corresponding agree, therefore the study suggests that student assessment is not regular. On item about academic performance is good, 180 (60.0%) agreed, 108 (36.0%) strongly agreed, 8 (2.7%) undecided.

The mean = 4.30 was close to code four which on 5-likert scale used to measure items corresponding agree, therefore the study suggests that academic performance is good . With respect to whether parents prefer taking

children to private schools, 97 (32.3%) agreed, 57 (19.0%) strongly disagreed, 54 (18.0%) strongly agreed.

The mean = 3.15 was close to code three which on 5-likert scale used to measure items corresponding undecided, therefore the study suggests that parents prefer rarely taking children to private schools.

As regards to whether parents can afford school dues at this school, 97 (32.3%) agreed, 57 (19.0%) undecided, 54 (18.0%) strongly agreed. The mean = 3.23 was close to code three which on 5-likert scale used to measure items corresponding undecided, therefore the study suggests that not all parents afford school dues at school.

The above study findings imply that there is high rate of establishment of private schools because of high academic performance in private schools, strict supervision, proper students and teacher welfare which make them to have morale and zeal to perform according to the required expectations of the their bosses unlike in government schools where there is poor academic performance due to poor quality of students enrolled in senior one, policy of automatic promotion, parents' failure to pay PTA funds on time.

The relationship between Management of the USE program and Establishment of Private Secondary Schools in Ibanda Municipality

Table 3 below indicates that there is a high positive significant relationship between management of the USE program and establishment of private secondary schools in Ibanda Municipality at $P=0.002$ at level of significance 0.01, $r = 0.878$. Therefore based on statistical tests, the

study rejects the null hypothesis which stated that “there is no statistically significant relationship between management of the use program and the establishment of private secondary schools in Ibanda Municipality”. The above study findings imply that there is poor universal secondary school education management which has increased the establishment of private of schools in Ibanda Municipality, Ibanda District. Therefore the poor management of USE program is directly responsible for the establishment of private schools in Ibanda Municipality.

Table 3: Correlation between management of the USE program and establishment of private secondary schools in Ibanda Municipality

		Manageme nt of the USE	Establishmen t of private secondary schools
Management of the USE	Pearson Correlation	1	0.878**
	Sig. (2- tailed)		0.002
	N	300	300
Establishmen t of private secondary schools	Pearson Correlation	0.878**	1
	Sig. (2- tailed)	0.002	
	N	300	300

** . Correlation is significant at the 0.01 level (2-tailed).

(Source: Field Data, June, 2019)

Discussion

The study found out that there is a high positive significant relationship between management of the USE program and establishment of private secondary schools in Ibanda Municipality at $P=0.002$ at level of significance 0.01, $r = 0.878$. The study rejects the null hypothesis which stated that “there is no statistically significant relationship between management of the use program and the establishment of private secondary schools in Ibanda Municipality”.

The above study findings are in agreement with Akaguri (2014) that even under the USE management, the remaining private costs of education are still impediments for enrolment and equality in the quality of education. The USE management normally subsidizes tuition fees only, leaving other direct and indirect costs to be borne by parents and families. Thus, the equality and equity of education remain as a concern under the USE management. The empirical evidence also challenges the adequacy of the cost intervention. Some studies argue that the unit costs of schooling at a given quality for marginalized populations can be quite different from those for non-marginalized groups (Milner & Tenore, 2010).

The above study findings are in disagreement with Milner & Tenore (2010), who carried out a study in Kenya, and revealed that official fee-abolition did not affect the enrolment of the nomadic population because it was simply served by spontaneous ‘bush’ schools, largely funded through contributions in kind. A more recent study

also finds that public policies that promote the expansion of primary education tend not to benefit the poor.

The findings are also in agreement with Lubienski & Lubienski (2013) that private schools students' school life satisfaction is higher than students' in public schools. This finding indicates a correlation between the satisfaction index and types of schools. The amount of investment per student by private schools is higher than public schools. Similarly World Bank's study (2012) shows that expenditure per student is \$516 in public secondary schools and \$1,524 in private secondary schools, \$876 in public high schools and \$1,587 in private high schools. Due to the advantages of private schools overall performance of students is higher compared to students in public schools. In terms of academic and social performance private schools in Turkey are generally among the highest-ranking institutions.

The study findings are in agreement with Dag (2015) that private schools also rank high in terms of school averages. 100 highest-ranking schools are private. Performance of private schools is higher than public schools in OECD countries. Private schools are also prominent in sports competitions. Private schools also have the liberty to hire teachers conforming to their own standards, which is not the case for public schools. Students of private schools are generally of higher socioeconomic standards.

Conclusions

It was concluded that there is a high positive significant relationship between management of the USE program and establishment of private secondary schools in Ibanda Municipality. Management of the use program is responsible for the establishment of private secondary schools in Ibanda Municipality.

Recommendations

The government should conduct effective supervision of universal secondary schools to improve the effectiveness of USE program.

The government should allow the school administrators to charge reasonable amount of money which will cater for the welfare for both teachers and students.

The government should also increase on the capitalization grant given to the school and should also improve on the teacher.

Teachers who do not perform their duties according to ministries' expectation should be laid off and at least the new ones should recruited.

The government should also restrict its teachers from part timing. They should be made compulsory to be at the station for five days in order cater for the interests of the weak learners.

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THE EFFECT OF APPRAISAL STANDARDS SETTING ON EMPLOYEE PERFORMANCE IN PRIVATE UNIVERSITIES IN UGANDA

**Authors: 1. Ankunda Emily- Bishop Stuart
University, Administration Department - Office of
the Vice Chancellor**

**2. Mureebe Dorcus- Bishop Stuart University,
Department of Secretarial Studies**

ABSTRACT

The study aimed at establishing the relationship between the appraisal standards and performance of employees in selected private universities in Uganda. It was carried out in two universities which were Kampala International University Bushenyi Campus and University of St. Joseph Mbarara. The study was carried out using a self-administered questionnaire and interview guide. It involved the administrative staff of the universities. The study was hence carried out amongst 60 staff members. The results were analysed using the descriptive statistics including frequencies and percentages, the mean distribution and regression analysis was used to analyse the relationship amongst the variable. The study generally revealed that there was a significant relationship between appraisal standards and employee performance. The standards the appraisal focused on were mainly the employee behaviours, competences and achievements.

The results indicated that the main behavioural targets were the employees' relations with colleagues, relations with clients, relations with supervisors and the extent to which employees observed the code of conduct including the discipline. The competences assessed related to relevance of the staff qualifications are assessed, staff members ability to counsel students, the ability to communicate with clients, the staff skills to do the work is assessed and the staff skills to do the work is assessed. On achievement, the study examined the application of appraisal on determining participation and ability to contribute in meetings, the staff performance, the research output, the clients attracted to the organization, the level of attendance to duties and participation in training activities. On the whole the study recommended the need to enhance appraisal standards and ensure that all staff members are aware of the standards that are usually assessed so that they work towards achieving them.

Key Words: Employee Appraisal, Employee Performance, Appraisal Standards

Introduction

This paper is about management of performance appraisal process and employee performance in private Universities in Uganda. It focuses particularly on appraisal standards that are usually captured by the appraisal including behaviours, competences and achievements. It has been acknowledged that most initiatives and increasing

presence of strategic human resource management programs in Institutions of Higher Education in different countries is to generate organizational capability to ensure that organizations have skilled, engaged, committed and well-motivated employees (Namutebi, 2012).

This would in turn help in stimulating new forms of innovation and change in many institutions. It therefore, calls for an effective performance appraisal in these institutions to see sustainable competitive advantage achieved. The recognition of performance appraisal (PA) as a performance enhancement tool became widespread in organizations between 1998 and 2004 when there was a steady increase in the number of organizations that were using PA system to the extent that it climbed from 69 percent to 87 percent.

Nowadays, it is estimated from 80-90 percent of organizations in the USA and UK use the system to assess employee performance and the level of commitment. The development and extension of PA to a large proportion of the workforce and the coverage of non-managerial occupations has extended the use of the system in both private and public sector (Prowse and Prowse, 2009). In the 1970s in the USA and around 1980s in the UK, government legislations regarding to employee rights introduced, which forced companies to implement some sort of PA (Furnham, 2004). It should be noted however that the use of appraisal has now come out as a common measure used by organizations to measure performance.

In a study by Memoria and Gankar (2000) staff appraisal was reported as important enhancing employee performance. They highlight that many organizations were using staff appraisal as a disciplinary and

motivational tool and this had made employee committed to their tasks whenever an appraisal is undertaken.

This was supplemented by Mullins (1999) who indicated that employee appraisal is supposed to identify a number of aspects including performance weaknesses and discipline issues which when resolved can yield employee performance. Armstrong (1998) described the concept of employee appraisal as the means to provide feedback to the employees on their performance and relationship management within the organization. He emphasized that the feedback received eventually becomes a motivation that leads to employee commitment as response that makes appraisal as a continuous process.

In view of the above Maund (2001) had a different view of the relationship between employee appraisal and performance. He explained that there is a likelihood of appraisal affecting performance especially if management uses it as a disciplinary tool that will make employees develop a feeling of fear whenever the appraisal is on schedule. This was also reflected by Namutebi (2011) when she explained that although the Ministry of education emphasizes appraisals and head teachers are obliged to do it every year, there was poor feedback. She reports of how teachers had complained that the appraisals are only referred to during promotions and disciplinary actions.

That indicates that the relationship between appraisals and staff performance may not be as obvious as one may just think and this raises the need for a study to assess the situation within the private universities in Uganda. This means also that organizations must tackle head on the challenge of how to assess the performance of

employees since it affects their level of performance. This is supplemented by Anderson, (1993) who argued that it is important for organizations to exploit the appropriate appraisal mechanisms to enhance commitment to performance by developing its human resource to make sure that organizational aims are fulfilled, and also to make sure that employees attain much satisfaction as possible from their work.

According to Darden & Babin (1994), many organisations base on employee performance to decide on the abilities and output of their employees. It is from such a position that good employee performance is always linked with increased consumer perception of service quality, while poor employee performance is linked to increased customer complaints and brand switching. Using these interpretations, employee performance will be used to refer to effectiveness (in terms of productivity and quality), efficiency on the job and a continuous search for improvement and development exhibited by the employee while executing his roles (Bika, 2018).

Performance appraisal therefore involves those activities aimed at developing a systematic evaluation process of a particular function on the basis of prescribed performance indicators and highlighting the areas for further development and growth of an individual employee. It can also be defined as a set of integrated management practices designed to maximize employees' potential and increase employee satisfaction (Dooren, Bouckaert, G. & Halligan, J., (2010).). Bach (2000) claims that there is a relationship between performance appraisal and employee performance in organisations.

That is because performance appraisal provides information that is useful in making decisions regarding various personnel aspects such as promotion and merit increase (Khan, 2013) which all influence employee performance and productivity. In many countries (especially the developing ones like Uganda), unsystematic appraisal has long flourished (covertly and unfairly) based on impulse, prejudice and incorrect or inadequate data (Owiye, 2013) and this has had tremendous effect on organisations in such countries.

The main call for this paper is because most of the studies on management of appraisal process and performance have been carried out on other organizations other than universities. It should be noted however that the systems, contexts and settings are different and this calls for a study in universities focusing on private universities. Evidence also indicates that despite the enabling policies and efforts, by both the Government and private sector actors in the promotion Higher Education through liberalization of the sector, student sponsorship and a tax support environment, performance has remained low and there is no independent study that has been undertaken which calls for the current study.

Materials and methods

In order to explore and have a deeper understanding of the phenomenon of management of appraisal and employee performance in private universities, a cross sectional case study was applied. The cross sectional survey design is a method that involves asking a large group of questions about a particular issue at one point in time and according

to Shuttleworth (2008) the cross sectional survey research design is a very valuable tool for assessing opinions and trends. Cohen & Manion (1994) also states that surveys gather data at a particular point in time with the intention of describing the nature of existing conditions or identifying standards against which existing conditions can be compared or determining the relationships that exist between specific events.

The approach utilized both qualitative and quantitative research approaches because of the variability of the required information. This research had two study sites, which were St. Joseph University and Kampala International University.

The study sites were purposively selected, with intention of ensuring that the different categories had been represented as supported by Gentles et al, 2015, Pattorn 2015 and Maree 2015). St. Joseph University is a private University that is faith based. It was therefore purposively selected in order to assess the aspects of management of appraisal in faith based Universities which are the majority in Uganda.

While Kampala International University was selected to represent the private Universities that are corporate founded and assess their management of appraisal and its effect on performance. The study population included both lecturers and administrative staff of the Universities. These were included in this study because of their probable understanding of the problem at hand. Simple random sampling techniques were used to select respondents as they belonged to different categories.

This approach is supported by Amin (2005) who argues that when the population is big, it is important to

use simple random sampling because of a number of reasons including; it gives each member of the population an opportunity to participate and helps the researcher to avoid any biases.

The study employed both quantitative and qualitative data collection techniques. These techniques were triangulated as Gay (1996) indicated that it is important to triangulate the data collection instruments. The study hence employed questionnaires with semi-structured, un-structured, closed and open ended questions. Questionnaires are supported by Lewis (2003) that they reduce bias and give respondents adequate time to give well thought out answers and reach out to respondents who may not be readily available like the chiefs. Interviews comprised of personal interviews with the identified stakeholders and sometimes as a means of following up of some interesting information (Silverman, 2001).

In the analysis of data, both qualitative and quantitative data was analyzed differently. After the data collection, the researcher checked the raw data for errors, missing entries and comprehensiveness. It was coded and analyzed using a statistical package called Statistical Package for Social Scientists (SPSS) which helped in generating tables and figures, frequencies and percentages as well as regression for analysis of relationships. Careful analysis of qualitative information is supported by Gay (1996) as the best way to generate information that can easily be understood. The data was analyzed for accuracy, consistency and completeness of the information. Content analysis was done manually and consisted of reading and re-reading the scripts looking for similarities and

differences in order to identify themes and patterns and trends which were identified and interpreted according to the study aim.

Results

This chapter presents analysis of the study findings which has been done in relation with the expectations of the chapter. The results provide descriptive statistics on the variables, a qualitative view of respondents' opinions and a regression of the relationships. On the demographic characteristics, the study analysed the distribution of respondents by gender, marital status, and level of education, religious background and longevity of service. It was important to collect information about the age groups of respondents as age determines a person's capacity to understand and perceive issues that influence his or her job to be able to plan well their performance standards as individuals. In most cases, adults are considered to have experience and knowledge about organizational challenges and are able to control how they behave.

On the other hand the young people are believed to be up and down, expect a lot from their jobs and are always on the move. During the study, it was noted by respondents that managers' believe young people are on transit in organizations and there is nothing much one can do to retain them. Even one an organization does a lot for them; they still believe they can get the best elsewhere. In another view, a respondent explained that when people have grown up and they have been in organizations, they even fear going to other organizations because of the

worry that they may find the responsibility is too much for them. At this level, money is not the driving factor of the employee but the desire to satisfy relations.

In this study, the study results revealed that majority of the respondents (34%) were age range of 21-30, years, followed by those who were aged in 20 to 26 to 30 who were 25%. The other category that featured was 31 to 35 which was 36 to 40 which 18% and 16% respectively. The results indicate that majority of the employees were young people which means that the organizations needed to employee appraisal in order to provide direction to the employees.

The study also analysed the respondents by gender to understand the category of gender that featured most. This data was important since factors that affect the males and females in their work places are different and hence they may perceive the importance of the appraisal differently from each other. It was revealed by respondents for example that while females are challenged by family responsibilities, have marital obligations that men may not have the appraisal standards may not be different from those applied on the males. Men have more control on the time spent at their work while the females may even be challenged by nature especially due to responsibilities of giving birth, attending to sick children among others which reduces the time they may have to allocate to the job.

In this study therefore, females were found to 54% as compared to the males who 46%. It is unusual to find females more than males in working environments in Uganda because of the disadvantages females have experienced over time. However this period the female

administrators were the majority as compared to the males. May be the situation could have been different if all the lecturers could have been accessed to assess how the situation was but the study was carried out during the COVID-19 pandemic period and the staff could not be easily accessed at the same time.

In an appraisal study, it was also important to assess the distribution of respondents by marital status. This is because; the way the married people may perceive the appraisal standards may be different from that of single people. This is because while the married may be challenged especially in regards to attending to duties, the single workers may not. It was revealed by one of the respondents that those who are still single may find flexibility in dealing with their job duties and the expectations of the married people may be different from the expectations of the single. Those who are still single will find training activities important whether they are on the job or off the job while the married ones would have preferred those on the job.

It was also revealed by one of the respondents that people who are married are more stable and will tend to settle in organizations as they do not want to move from place. The study findings indicated that the majority of respondents were married 76% followed by those who were single 20% and lastly those who were separated 4%. The majority of people being married is mainly due the fact that the study targeted administrators and most of these are mature and responsible people who mind much about stable sources of income for their homesteads to provide for basic needs in their homes.

It was important to collect data about the highest level of education for the respondents as determines a lot how people conceptualize issues that affect their daily routines of doing work. The level of education determines employee expectations, challenges and interpretation of situations around themselves. In addition, people with high levels of education are empowered to have bargaining power when it comes to performance expectations. It is also easy for an educated person to move from one job to the other because they are more competitive. This eventually influences the way they perceive appraisal standards as harsh or appropriate.

The study findings revealed that majority of the respondents 60% had attained University level of education, followed by those who had Masters level of education who were 33% and 7% had attained PhD. It is hoped however that if the study was not carried out during COVID-19 period, more PhDs holders could have been accessed but the lecturers were out of stations.

The study also examined the period the staff had worked for the organisation. The study revealed that majority of the respondents had stayed in universities for more than 5 years 46%, followed by those who had stayed for 1-5 years with 34% and lastly those who had worked with the organisations for less than 1 year with 20%. This implies that majority of respondents had worked with the organisations for long time, hence had necessary experience and knowledge about the appraisal standards and performance.

This paper also presents the findings obtained from questionnaire designed in form of a five (5) point likert scale format where a mean score above 3 implies low

agreement, a mean score that equals to 3 shows neutral (average) and a mean score that is below 3 indicates very strong agreement. In addition, Standard Deviation (SD) which can be corrected to nearest one (1) for instance (.9954) and above shows very strong level of agreement and score that cannot be corrected to one (1) like (.3785), indicates disagreement. The results on the different appraisal standards that were investigated are presented in Table 1.

Table 1: The behavioral standards of staff appraisal

	N	Minimum	Maximum	Mean	Std. Deviation
The relationship of staff with colleagues is assessed	80	1.00	5.00	2.2375	1.28520
Staff relations with clients is assessed	80	1.00	5.00	2.3500	1.23350
The staff relations with community is always assessed	80	1.00	5.00	3.4000	1.17570
The appraisal assesses whether the staff is disciplined	80	1.00	5.00	1.8250	.99078
The staff members respect to supervisors is assessed	80	1.00	5.00	2.1250	1.08354

The management of organization communication is important in appraisal	80	1.00	5.00	2.3625	1.05835
The appraisal evaluates staff member's attitude to work	80	1.00	5.00	2.2500	1.11945

The study findings in Table 1 revealed that majority of respondents agreed with statement that the relationship of staff with colleagues is assessed, while. This is reflected by a mean of 2.2375 and StD of 1.2852 which shows very high level of agreement. When the researcher interacted with the respondents in interviews, some of the respondents revealed that the extent to which employees interact with colleagues is very important. An employee with behaviours of abusing colleagues, stealing from them, non cooperative behavior and fighting is considered not a good employee and such behaviours must be assessed to see whether they existed in the work place.

The study also assessed whether the appraisal also considered Staff relations with clients and this revealed a mean distribution of 2.3500 at a standard deviation of 1.233 which was also strong. The participants of the standard explained that clients are the reason the universities exist and must be respected. In one of the interactions with an administrative staff, she revealed that students come for consultations of different kinds. She explained that some of the issues students ask may appear to be trivial but it is important to respond to them in affirmative. It was also revealed that it is always good to

give students the information they need whether they are in class or outside class because the students are a measure of the universities' output and hence must be taken seriously.

On the statement that The staff relations with community is always assessed, the results indicated a mean distribution of 3.400 and this indicated that the respondents were neutral to this inquiry. It was revealed that though it is true that the role of universities is to research, teach and does community work, community work is not always mandatory. However one of the administrators explained that at higher levels of academic progression it is considered. She noted for example that it is a requirement when one is to be promoted from Associate Professor to the position of Professor. However at the lower levels, it is not considered for promotions and less considered even during appraisal.

The study also examined whether the appraisal assesses whether the staff is disciplined and this attracted mean value of 1.825 which was indicated that most of the respondents were in agreement. During interviews, one of the respondents noted that the appraisal seems to be 90% discipline oriented. In view of the above aspects, one can note that the appraisal is basically a discipline management issues and the organizations take it serious because of this particular aspect.

The study also analysed whether the appraisal assessed whether the staff members respect to supervisors which attracted a mean value of 2.125 at a standard deviation of 1.085 which was strong. It was revealed during interviews that any staff member who does not cooperate with the supervisor may not perform

accordingly. It was also revealed that even when the issue of the relationship is not indicated in the appraisal document, it seems obvious because it is the supervisor who carries out the assessment. It was reported by one respondent however that at times the appraisal is abused by supervisors who provide low rating to staff because they do not agree with them in a number of ways even when they are not related to the jobs. One of the respondents revealed that most people who have lost their jobs is because of challenges with supervisors which at times is not genuine.

It was also important to assess whether the appraisal also focuses on the management of organization communication in which a mean of 2.3625 at a standard deviation of 1.058 was generated. It was revealed in one of the universities that employees are even supposed to make an oath that they will never communicate important information to other organizations or people except when they are authorized to do so. It was found out that all the universities visited had public relations officers and they were the ones mandated to communicate on behalf of the university. If any other person does it and it is discovered, they are penalized accordingly. This therefore is one of the appraisal standard to assess how well the employees observe such a standard.

It was also examined whether the appraisal evaluates staff member's attitude to work and this attracted a mean distribution of 2.2500 at a standard deviation of 1.119 which was generally strong. It was not surprising that one respondent explained that supervisors have always tried to investigate whether staff members were working with other organizations at the same time. Another respondent

noted that many times, attitude is difficult to assess but supervisors always ensure they focus on it. Sometimes however it is easy to take wrong judgment of the attitude of staff and think they do not like the organization when actually they do.

In view of the above results however, it can be observed that appraisal standards are very important ingredients in a staff appraisal. Behavior determines all the other performance related aspects and hence it must be appraised to know where a staff member is standing.

Table 2: relationship between behavioural standards and performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
	.334 ^a	.111	.100	4.46616		
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
(Constant)	9.049	1.988		4.552	.000	
behaviours	.363	.116	.334	3.125	.002	

a. Predictors: (Constant), behaviours

b. Dependent Variable: performance

In order to ascertain the relationship between behavioral aspects and performance, a regression analysis was used and the results are presented in Table 2 above which indicates that there is a significant relationship between behavioural standards and performance.

This is indicated at 0.000 level of significance. The results indicate an R-SQUARE of 0.111 which means that behavioural standards influence performance by 11% and a Beta value that is positive indicating that if the appraisal of behavioural standards is carried out well, there will be an increase in performance.

The study also analysed the relationship between appraisal competence standards and performance as indicated in the following presentation;

Table 3: appraisal competence standards

		M inim um	M axim um	M ean	Std. Deviati on
Relevance of the staff qualifications are assessed	0	.00	.00	.2000	38162
The staff members ability to counsel students is important	0	.00	.00	.8750	27219
The appraisal assesses the ability to communicate with clients	0	.00	.00	.7750	29597
The staff skills to do the work is assessed	0	.00	.00	.8000	1955

The ability to do research is important	0	.00	.00	1	5	.3500	3	1.3	5104
The staff ability to innovate is assessed	0	.00	.00	1	5	.4000	2	1.2	2836
Participation and ability to contribute in meetings is assessed	0	.00	.00	1	5	.9375	2	1.3	9023

As can be observed from Table 3, a number of variable were studied. The study findings revealed that respondents did not agree with statement that Relevance of the staff qualifications are assessed which indicated a mean value of 3.2000 which shows that respondents were more neutral to the statement. When the researcher interacted with respondents, they revealed that usually qualifications are the main entry point and for you to get a particular position it is considered.

However for subsequent performance related aspects, it is not assessed because it is already known for that particular position. The study also investigated whether the appraisal considers the staff members ability to counsel students is important which attracted a mean vale of 2.8750 at a standard deviation of 1.37219 which was strong. When the researcher interacted with the respondents in interviews, some of the respondents revealed that counseling is what everybody should be ready to do when you are dealing with students. Some students and actually most of them come to school with particular challenges.

These include lack of school fees, academic challenges, relationships, lack of study materials among others. Hence they are highly stressed. It is hence the responsibility of staff whether academic or administrative to ensure that students are provided with counseling hence the appraisal must assess this ability.

The study further explored whether the appraisal assesses the ability to communicate with clients and this attracted a mean of 2.8750 at a standard deviation of 1.37219 which was strong enough. The results in interviews indicated that administration and teaching are communication responsibilities. An administrator is always communicating either verbally or with other means. In this hence an effective administrator is one who can communicate effectively. This means the ability to communicate must be assessed. The same situation is with teachers.

There is no way one can teach if there is a communication problem. The study also assessed whether the appraisal also considered the staff skills to do the work and this revealed a mean distribution of 1.8000 at a standard deviation of 0.919 which was also strong. The participants explained that skills is what one transacts within the organization. If the skills are lacking, performance cannot be expected. One respondent called it “gabbage in gabbage out”. This meant that if you deploy a staff member who lacks, skills, you do not expect good results. Hence the appraisal must be used to assess the presence of skills in a staff member.

On the statement that the ability to do research is important, the results indicated a mean distribution of 3.3500 which indicated that the responses were neutral.

During interviews, they revealed that though research was important, it was not a main requirement for the administrators. It mainly the academic staff where research is important to be able to teach and also for promotion. It was revealed that though it is true that the role of universities is to research, teach and does community work, research is not mandatory for administrators. However it is important in academic work and that ability must be assessed.

The study also examined whether The staff ability to innovate is assessed and this attracted mean value of 2.400 which indicated that most of the respondents were in agreement. It was understood that innovation in this case meant generation of new ideas through which work can be done easily. Some of the respondents revealed that every day new ideas are generated at individual, departmental or even at faculty level. It was observed that innovativeness of the individual need to be assessed.

Finally, the study also analysed whether Participation and ability to contribute in meetings is assessed which attracted a mean value of 2.9375 at a standard deviation of 1.39023 which was strong. It was revealed during interviews that meetings are the main management channel and any staff member who does not cooperate means has a particular problem. The ability attend hence must be assessed during appraisal.

The results on appraisal competence standards that competence standards are very important in a staff appraisal. It contributes significantly to performance and should be taken seriously. In order to ascertain the relationship between competence aspects and

performance, a regression analysis was used and the results are presented in Table 3.

Table 3: relationship between competence standards and performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
	.801 ^a	.64	.637	2.83509		
Model	Unstandardized Coefficients		Standard Error	t	Sig.	
	B	Std. Error				Beta
(Constant)	3.846	1.000		3.845	.000	
competenceis	.580	.049	.801	11.824	.000	

a. Predictors: (Constant), competenceis

b. Dependent Variable: performance

Table 3 above indicates that there is a significant relationship between competence standards and performance. This is indicated at 0.000 level of significance. The results indicate an R-square of 0.0.642 which means that competence standards influence performance by 64% and a Beta value that is positive indicating that if the appraisal of competence standards is carried out well, there will be an increase in performance. In the final analysis, the study also analysed the relationship between appraisal achievement standards and performance as indicated in the following presentation:

Table 4: appraisal achievement standards

	N	Mini mum	Maxi mum	Mea n	Std. Deviatio n
The staff performance is assessed	80	1.00	5.00	2.2375	1.18261
The research output is assessed	80	1.00	5.00	2.0125	1.06133
The clients attracted to the organization	80	1.00	5.00	2.7875	1.46429
The level of attendance to duties Is aassed	80	1.00	5.00	2.1250	1.30602

Participation in training activities is usually evaluated	80	1.00	5.00	1.6875	1.01375
Contribution to community service is assessed	80	1.00	5.00	3.5375	1.25228
Performed additional duties and responsibilities are assessed	80	1.00	5.00	1.9875	.98718

As can be observed in Table 4, the findings revealed that respondents agreed with statement that the staff performance is assessed, 1.9875, which revealed a mean of 2.2375 and StD of 1.18261 which shows very high

level of agreement. During interviews, respondents indicated that performance is the reason one is employed and it must be assessed.

The study also assessed whether the research output is assessed and this revealed a mean distribution of 2.0125 at a standard deviation of 1.06133 which was also strong. The participants of the study however explained that research is mainly assessed for academic staff and not administrators. It was noted however that for administrators of academic units like heads of department, deans and others, research is still a very important component and must be assessed. On the statement that clients attracted to the organization, the results indicated a mean distribution of 2.7875 and this indicated that the respondents were in agreement that clients attracted to the university is important. One respondent explained that “this is a private university and any payment to staff or an administrator will depend on the number of students. Hence staff members are always encouraged to attract students and this achievement is always assessed.

The study also examined whether the level of attendance to duties is assessed and this attracted mean value of 2.1250 which indicated that most of the respondents were in agreement. During interviews, one of the respondents noted that the appraisal rates high attendance to duties. It was noted for example that it is not easy to measure the output of an administrator other than attendance to duties. This is the same as lecturers because if they do not attend to students, this can even result in strikes. Hence need to take it serious actions through the appraisal process.

The other aspects that were analyzed were whether participation in training activities is usually assessed and this attracted a mean value of 1.6875, and a standard deviation of 1.01375 which showed that it was considered. It also assessed contribution to community service and generated a mean value of 3.5375 at a standard deviation of 1.25228 and finally whether the staff member performed additional duties and responsibilities which generated a mean value of 1.9875 at a standard deviation of 98718.

The above results indicate that the appraisal is achievement oriented. The main focus of the organization is to generate results through people and assessing well the results are being generated is very important.

In order to ascertain the relationship between achievement aspects and performance, a regression analysis was used and the results are presented in Table 5.

Table 5 above indicates that there is a significant relationship between achievement standards and performance. This is indicated at 0.000 level of significance. The results indicate an R-SQUARE of 0.432 which means that achievement standards influence performance by 43% and a Beta value that is positive indicating that if the appraisal of achievement standards is carried out well, there will be an increase in performance.

Table 5: relationship between achievement standards and performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
	.657 ^a	.432	.424	3.57194		
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
(Constant)	6.033	1.239		4.867	.000	
achievement	.551	.072	.657	7.695	.000	

a. Dependent Variable: performance

b. Independent variable: achievement

Discussion and conclusions

In Uganda, private universities are still young and experience peculiar challenges. The first private University in Uganda was started in 1988 following neo-liberal policies and economic crisis of the 1980s (UNESCO, 2001). Since the start of the first University in Uganda, the performance of these institutions has been

below standard (Atwebembeire, Musaazi, Namubiru&Malunda, 2018). This affected the quality of teaching and research amidst declining students' welfare (Tibarimbasa, 2010). While many issues can lead to poor performance in private Universities, employee performance appraisal could have led to the observed poor performance in these Universities (Kasule, 2015).

This is an undesirable situation in which all stakeholders need to stage a combined effort to ensure that these institutions improve on their performance so as to provide quality education that can contribute to the national development goals and the overall public good. However, performance of any organisation highly depends on the performance of its employees (Gavrea, Ilies&Stegerean, 2011). This suggests that any interventions for purposes of improving employee performance should be focused on employee performance. It is for such a reason that this study is being proposed.

This study adopted the goal setting theory (GST) to diagnose the relationship between management of appraisal and employee performance in private Universities. The theory was proposed by Edwin Locke in the 1960s and it states that goal setting is essentially linked to task performance; specific and challenging goals along with appropriate feedback contribute to higher and better task performance (Locke, 2001). This implies that, if the set goals are easy then the performance of an individual or organisation decreases (Locke & Latham 2006). This is because, goals indicate and give direction to an employee about what needs to be done and how many efforts are required to be put in and this translates

into better performance. The theory consists of several constructs which interact together to bring about improved performance. They include; willingness to work towards attainment of goal as the main source of job motivation; specific and clear goals leading to greater output and better performance; setting realistic and challenging goals and giving appropriate feedback to employees (Locke & Latham, 2006).

This theory has been chosen for this study because it leads to better performance by increasing motivation and efforts, but also through increasing and improving the feedback quality (Locke & Latham 2006). Therefore, using this theory, this researcher found out the management failures at universities as far as motivating employees through appropriate performance appraisal systems.

The above notwithstanding, GST is applicable in all place where effective results are desired through effective goal setting (Locke & Latham 2013). It is thus adopted in this study; it was used to assess employee performance at selected universities against the performance appraisal standards. The theory has already had a wider application in the area of performance management in different contexts and it will be used to assess performance in a private universities' context. The current study found that the appraisal is applied to assess whether the staff is disciplined and one can note that the appraisal is basically a discipline management issue and the organizations must take it serious because of this particular aspect.

The study also found that the appraisal is used to assess whether staff members respect supervisors and that any staff member who does not cooperate with the

supervisor may not perform accordingly. It was also revealed that even when the issue of the relationship is not indicated in the appraisal document, it seems obvious because it is the supervisor who carries out the assessment. Important also was that the appraisal also focuses on the management of organization communication and that employees are even supposed to make an oath that they will never communicate important information to other organizations or people except when they are authorized to do so.

The study also investigated whether the appraisal considers the staff members ability to counsel students in which the employees said that counseling is what everybody should be ready to do when you are dealing with students. Some students and actually most of them come to school with particular challenges. These include lack of school fees, academic challenges, relationships, lack of study materials among others which must be addressed. Hence the ability to communicate with clients remained an important issue and that administration and teaching are communication responsibilities because for example an administrator is always communicating either verbally or with other means and this means the ability to communicate must be assessed.

The same situation is with teachers because there is no way one can teach if there is a communication problem. On the ability to do research the study found that though research was important, it was not a main requirement for the administrators. It is mainly the academic staff where research is important to be able to teach and also for promotion. Though it is true that the role of universities is to research, teach and does

community work, research is not mandatory for administrators. Finally the results indicated that the appraisal is achievement oriented. The main focus of the organization is to generate results through people and assessing well the results are being generated is very important.

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LOAN COLLECTION PROCEDURES AND FINANCIAL PERFORMANCE OF SACCOS IN MBARARA CITY

***Baluku Watsema**

Email: bwatsema@beg.bus.ac.ug

Bishop Stuart University – Mbarara, Uganda
Department of Business and Entrepreneurship

Anthony. K. Agume

Email: aagume@beg.bsu.ac.ug

Bishop Stuart University – Mbarara, Uganda
Department of Business and Entrepreneurship

Nuwagaba Arthur

Email: anuwagaba@beg.bsu.ac.ug

Bishop Stuart University – Mbarara, Uganda
Department of Business and Entrepreneurship

Abstract

The study flexed off to establish whether a relationship occurs amid loan collection procedures and financial performance of SACCOs in Mbarara City. This undertaking championed a non-experimental cross-sectional research design with both descriptive and analytical styles where mixed method approach was used to collect and analyse data. The undertaking gathered quantitative data from 109 participants using questionnaires. Questionnaires were used to gather quantitative data which was then put into a data management tool, statistical package for social scientists' version 20 for further description and inferences. The tool was then used to output a descriptive presentation and Pearson correlation

coefficient mounted employed to ascertain statistical significance between the loan collection procedures besides financial performance of SACCOs in Mbarara city. The undertaking findings uncovered a slight positive connection amid loan collection procedure besides financial performance of SACCOs ($r=0.259$, $p<0.001$). qualitative data was obtained by use of an interview guide that were subjected to the SACCO managers to give deep insight concerning the variables being undertaken. This undertaking resolved that loan collection procedures positively influences SACCOs' financial performance. The undertaking commends SACCOs towards adopting unique revised loan collection procedures if the collections are to be realized on the agreed time as per the loan contract to ensure better loan performance hence improving the financial performance of the SACCOs.

Keywords: Loan collection procedures, Financial performance and SACCOs.

Background

SACCOS are referred to as cooperative financial models where savings are mobilized from the members and credit access encouraged for improvement of standards of living (Ndiege et al., 2016) the SACCOs have got the capacity to grow and accumulate its profits for sustainability when the members borrow the money and return it on time with the interest which makes it accumulated by the time its repaid to the SACCO (Said et al., 2019) when the rightful procedures are followed by the SACCO to recover the loans, there is no doubt that the profitability will be

realized (Bongomin et al., 2017). A SACCO is able to accumulate profits and build a self-sustaining grown when the borrowers contribute much towards loan portfolio quality through proper loan collection as the amount collected encompasses the interest on loans (Keitany, 2013), (Wagofya, 2018).The borrowers capability to ensure the loan is paid back and interest at the same time is influenced by the financial literacy of the deficit spending units which greatly contributes to the financial performance of the SACCOs (Moki et al., 2019).

However, Most realistic undertakings reveal that financial performance of SACCOS if determined by a diverse factors in ensuring that the loan portfolio becomes quality especially when repayments by the borrowers are promptly made as per the loan agreement, in managing loan delinquency among SACCOs, loan collection procedure stands out as one of the best strategies which is the major contributing factor towards profitability of the SACCO (Maithya, 2017) and (NJERI MURAGE, 2018). Financial performance of SACCOS was intellectualized through liquidity, loan recovery and profitability (Kule et al., 2020) and (Hesborn et al., 2016).

Loan collection procedures are put in place to ensure that the loans together with the interests as per the loan schedule are collected back timely from the borrowers for the better management and control of the loan portfolio (Paul & Musiega, 2020). For the better financial performance of the SACCOS, a clear strategy concerning the collection of the loans needs to be sought out and implemented by the concerned loan operation team as this would guarantee the quality of the loan (Makupe, 2016). When the credit reminder strategy is not well followed

and implemented, the chance of borrowers compliance towards payment becomes low hence there is a need to put procedures of collection to improve the loan repayment rate (Paul & Musiega, 2020).

Most studies have been carried out on loan delinquency management through consideration of other unidimensional variables like credit terms relating them to the financial performance of financial institution among which SACCO are inclusive (Luoga, 2013), inadequate attention has been directed towards loan collection procedures which has rendered the borrowers relectant in paying back the loan at the stipulated agreed time hence compromising the financial performance with little or no profits at all (Mamet, 2018). Besides the competitive strength of a financial institution lies the power to control the risk of loan repayment therefore SACCOs need to revise and strengthen their loan delinquency management strategies to stand a better position towards financial performance by gearing and streamling their loan collection procedures (Kamau, 2015).

In Uganda, a good number of SACCOs have faced financial performance challenges due to the fact the managing loan delinquency and other associated credit risks have failed among which loan collection procedures have not been given much consideration (Kamau, 2015) in other developing countries with concern to the operation of SACCOs have not waited to see SACCOs struggling financially other than bailing them out a case in a point is Tanzania and Rwanda have set good examples of financially helping the SACCOs putting into consideration their financial literacy provision to the

natives (Ndiege *et al.*, 2016) for the case of Uganda particularly SACCOs in Mbarara city, financial performance has continuously been registered due to poor loan recovery caused by the inefficiency in implementing the loan delinquency management strategies particularly loan collection procedures (commercial officers' SACCO business status report 2019).

This situation has greatly affected some SACCOs as they have failed to meet their financial obligations like meeting the customer needs, failing to pay the workers and other operational costs at hand. Additionally, all this is attributed perhaps to the mode of administering loan collection procedures which leads to low recovery rate of the loans from the borrowers hence less or no profitability by the SACCOs.

However, much as SACCOs in Mbarara city are considering the procedures of loan collection to manage loan delinquency, a loophole seems to exist in the implementation of the said strategy which is clearly evidenced by low financial performance. A case in point was Ankole Diocese Millennium SACCO whose profitability level reduced by 2% from the financial year 2019 to 2020 as a result of poor loan recovery (P & L Report 2019), Bessenia SACCO whose loan recovery rate was only 12% in 2019 (Bessenia SACCO P&L report 2019) and Mbarara Hawkers SACCO which made profits of UGX 42,307,710 (financial report 2018) in the financial year 2018 and a loss of UGX 9,747,080 due to loan under recovery in 2019 (financial report 2019). To this end, there is light empirical evidence on how loan collection procedures relate to the financial performance of SACCOs in Mbarara City thus upsetting the researcher

to carry out the undertaking, which intended at establishing the relationship amid loan collection procedures besides financial performance of SACCOs in Mbarara City.

Study Purpose

This undertaking purposed to establish the association amid loan collection procedures besides financial performance among SACCOs within Mbarara City.

Review of Literature

Theoretical Review

This undertaking was fastened on Modern Portfolio Theory which enlightens on how a given loan collection is used to exploit proceeds and diminish loan delinquency through helping the management integrated several loan components in an ethical manner (Njenga & Jagongo, 2019),(Kule et al., 2020). The theory is advantageous in a way that a given loan collection be selected considering its impact on the others' performance (NJERI MURAGE, 2018).

The theory holds a notion that every investor in this case the SACCO is always expectant of the risk come along with investment. This is clearly based on the fact that a person or a financial institution can achieve greater financial returns by active divergence of credits in a specified loan portfolio. The theory clearly gives an insight on how a given person or financial institution

strategically can realise more returns provided the loan collection has been diversified as this minimises the rate of default by the borrowers hence realizing a promising monetary performance (Kule et al., 2020).

(Otieno et al., 2013) identified a relationship that is significant between risk and return within SACCO business meaning that an investor which is a SACCO in this case, must take on higher risk to achieve financial performance. Supportively, the Capital Pricing Model which is premised on the conception that the danger of giving out a unit of loan is proportional to the systematic of its consequence in its operational environment leaving other factors constant (Hesborn et al., 2016).

The fundamental idea is that SACCO financial performance is straightly associated to its loan portfolio quality putting into consideration the economic environment within which it functions. This is practically evidenced in the rate at which the customers take the loans and the rate of repayment where in most case the clients have attributed their failure to pay on time to the unfriendly economic condition (Bosco & Faustin, 2016). Hence the delayed loan repayment greatly affects the income statement of the SACCOs by being reflected as an expense thus diminishing the profitability at the end of the period.

Therefore, SACCOs' managements should plan diverse loan categories that yield benefit of unlike situations together with the environment of operation with high chances of defaulters (Poot, 2020). Cumulating the loan ceiling as per the result of this study troubles the SACCOs' financial performance. In practice, there is amplified demand for general expansions when SACCOs

have enough cash in circulation, emergency loans when the members are faced with unpredicted circumstances and asset funding loans when the debtor anticipates updates acquiring an asset (Kalu et al., 2018), (Maosa, 2020).

These multiple loans when administered with good loan policies, will improve the profitability of the SACCOs by ensuring loan portfolio quality as a result of engaging the guarantors to minimise the loan default (ANTONY et al., 2019), (Njogu & Omagwa, 2018). However, in most instances, SACCOs are characterized by side stepping internal control systems put in place due to trust and faith in their members which results in loan defaults (Maithya, 2017).

Loan collection procedures and financial performance of SACCOs

Loan collection procedures are one of the loan delinquency management strategies that need to be given maximum attention in as far as loan repayment is concerned which is a major weigh of loan portfolio quality and guarantees a good financial performance (Makori & Sile, 2017). Loan policies needs to be reviewed by the SACCO management in a direction of prioritising the procedures of loan collection as this will greatly contribute to high rate of loan repayment thus profitability of SACCOs (Kamau, 2015).

There is need for loan follow up procedures in terms collection that is very flexible for the borrowers to comply. This procedure needs to be friendly and less costly to the deficit spending units as it will boost the compliance rate hence stimulating profitability of the

SACCO (Katula & Kiriinya, 2018) and (Lagat et al., 2013).

Loan collection procedures are very vital in ensuring that the borrowers pay on time as it provides different modes of paying back the loan which are convenient to the clients like payment to the field staff, paying using mobile money option with the current evolution of MSACCO. These techniques encourages the borrower to find it easy to pay back the loan (NJERI MURAGE, 2018).

Following the loan collection procedures clearly by the loans officers, give them more insight on provisions of other options that can help the borrower to pay back the loan and this sometimes calls for sale of collateral security in agreement with the borrowers to ensure that the money is collected in the due course, the SACCO benefits in terms of loan performance hence a positive financial performance (Makupe, 2016).

(Maithya, 2017) revealed that there is a need to revise the loan policies regularly to ensure that they fit within the area of operation to basically favour the borrowers. In a view that once the borrowers' conditions are put into consideration by the lending authority which is the SAACO, then borrowers can easily negotiate on the instalment payment monthly and even on the mode of payment to ensure that at the end of the period, the loan has fully been paid and to this end, the SACCO will be benefiting in terms of loan recovery and other financial benefits following prompt loan recovery towards the financial performance.

Loan collection procedures remain important in the aspect of debt collection because most clients before even

taking the loan from the SACCO, they fast scan the mode of payment, the penalties involved in situation of failure to comply (Mamet, 2018). The mode of debt collection plays a big role to ensure the clients pay back their loan at ease and on the stipulated time hence there is need for the SACCO management to set and follow flexible collection procedures to aid the high rate of collection as this will manage the issue of loan delinquency (Kamau, 2015).

Administering the loan collection procedures effectively would also require professional implementers to ensure a smooth transaction between the borrower and the debt collector. Here the concept of character by the loans officer is very key as it would derive the borrower to understand, trust and eventually get convinced of the benefits of paying the loan on time hence benefiting the SACCO towards its financial performance (Duncan et al., 2015).

Juma *et al.*, n.d. reveals that debt recovery strategies have got a great contribution towards the financial performance of a given financial institution if it is well managed by the implementers especially the loans officers. All the customers are much interested in the effectiveness of the collection procedure put in place basing on the convenience, the trust in that procedures among others will stimulate the borrowers to meet their loan obligations as they fall due (ANTONY *et al.*, 2019).

A study by (Paul & Musiega, 2020) revealed that among these strategies to give much attention as far as managing credits risk is concerned specifically on the loans given out is the collection procedure because any loan that is given out must be collected when it falls due and this calls for streamlined proper means of collecting

back this loan otherwise the borrower may be rendered reluctant if no means of collection are reached upon by the concerned financial institution.

Additionally, it's imperative to note that SACCOs basically depend on loans as their major asset and meaning the quality of the loans matters a lot concerning the financial performance of the SACCOs (Kamau, 2015) and (Katula & Kiriinya, 2018). In a position where the administered loans get collected as expected per the loan agreement prior endorsed by both parties, the SACCO has got absolute capacity to maintain and sustain itself and meet the expectations of the shareholders if the concept of loan collection procedures is well implemented and controlled for the betterment of the SACCO as regards financial performance (Miriti, 2014).

From the reviewed literature concerning the phenomenon undertaken which is loan collection procedure and financial performance of SACCOs in Mbarara city, the following hypothesis was generated.

H02: A statistically significant association does not exist amid loan collection procedures and financial performance of SACCOs in Mbarara city.

Research question

Does a statistically significant association exist amid loan collection procedures and financial performance of SACCOs in Mbarara city?

Methodology Study setting

In Uganda, instances of SACCOs struggling with financial performance are on the increase as a result of loan delinquency which exhibits a loophole in the procedures used in loan collection. This study set out to examine the association amid loan collection procedures and financial performance of SACCOs with a special focus on Mbarara City, Southwestern Uganda.

In Uganda, savings and credit cooperatives emerged at the beginning of the 1990s during the economic recovery period from the 1980s economic downturn caused by political instabilities. They gradually picked towards the close of the 1990s and the early 2000s. SACCOs are operational in almost every village in Uganda and they have advanced their operations with the emergency of ICT and other related innovations as concerns the operation of SACCOs. Mbarara City has forty-nine registered SACCOs which is the highest in the region.

This study considered the twenty-four most performing SACCOs in Mbarara City to assess their level of financial performance putting into consideration the procedures used in loan collection from the borrower on the due date. The fact that loans play a vital role as regards SACCO financial performance, collection from the borrowers is key and therefore need maximum attention for the betterment of the SACCO business in Uganda.

Study Design

The undertaking assumed a cross-sectional survey research design which was both descriptive and analytical with a mixed method approaches of collecting and analysing data. The undertaking considered 24 registered and well-performing SACCOs in Mbarara City. This study employed a purposive sampling technique in the selection of well-performing SACCOs within the Mbarara City.

From the population of the study, stratified sampling technique was considered by the researcher to come up with strata of managers, credit managers, accountants, and credit officers. Simple random sampling was further applied in these strata except managers who were purposively selected because they have much insight as regards loan collection procedures with financial performance among the SACCOs they are managing. A sample size of 92 managers, credit managers, accountants, and credit officers from 24 registered SACCOs in Mbarara City was selected using simple random sampling techniques.

The Questionnaire

A five-level Linkert scale questionnaire was designed and used in measuring participants' opinions regarding loan collection procedures and financial performance of SACCOs. It is a closed questionnaire intended to calculate the mean ratings in consideration of how the participants interpreted and responded to the statements presented to them in the undertaking.

Study Variables' Measurement

Independent variable was loan collection procedures whereas financial performance of SACCOs within Mbarara City was considered dependent. The two variables were measured with knowledge from earlier revisited literature by scholars on the same phenomenon.

Data Management and Analysis

Quantitative data was managed using a tool SPSS (version 20) where it was processed. After data aggregation, statistical description together with correlation analysis stood undertaken. Findings were presented in frequencies, percentages, mean and standard deviations. Hypothesis was ascertained using person correlation to derive an inference on whether association amid loan collection procedures and financial performance of SACCOs occurs. And qualitative data was managed through thematic content analysis and narrative reasoning.

Analysis and Results

Loan collection procedures and financial performance of SACCOs

Quantitatively, statistical description was done to clearly describe how the participants responded to the loan collection procedures statements availed to them by the

research using a five-point Linkert scale from 5-1 as per the set-up of the tool. Mean was highly considered to measure the level at which the participants gave their opinion where mean at 3 was considered the minimum to specify that the respond was undecided about the statement, mean below the minimum 3 to specify the respondent disagreed to the statement and finally mean above the minimum specifies an agreement to the statement subjected to.

Qualitatively, data from key informants was analyzed using thematic content analysis and narrative reasoning. Thematic content analysis involved shrinking responses from the participants into theme of same meaning and mixing into the interview schedule guide to simplify the analysis. Some words were directly quoted, statements were recorded from the respondents.

Elicited results are presented in Table 1 below:

Table1: Statistical description of Loan collection procedures.

Statement	1	2	3	4	5	Me a n	Std. Dev ia ti on
We recover overdue debts	0 (0.0 %)	4 (4.3%)	4 (4.3%)	69 (75%)	15(16 .3%)	4.05	.783
We have effective defaulters penalties	0 (0.0 %)	3 (3.3%)	2 (2.2%)	32 (34.8 %)	55 (59.8 %)	4.54	.674

We maintain collection deadlines	0 (0.0 %)	0 (0.0%)	0 (0.0%)	32 (34.8 %)	60 (65.5 %)	4.63	.848
We offer Discounts on timely payments	0 (0.0 %)	10 (10.9 %)	7 (7.6%)	50 (54.3 %)	25 (27.2 %)	3.05	.397
We apply efforts to minimize slow payments	0 (0.0 %)	0 (0.0%)	9 (9.8%)	39 (42.4 %)	44 (47.8 %)	4.38	.650
We closely monitor loans arrears	0 (0.0 %)	0 (0.0%)	0 (0.0%)	43 (46.7 %)	49 (53.3 %)	4.55	.700
We fine clients who delay to pay	0 (0.0 %)	0 (0.0%)	9 (9.8%)	40 (43.5 %)	43 (46.7 %)	4.37	.948
We review debt collection	0 (0.0 %)	0 (0.0%)	25 (27.2 %)	52 (56.5 %)	15 (16.3 %)	3.86	.659
We analyse particular cases arising	0 (0.0 %)	0 (0.0%)	9 (9.8%)	40 (43.5 %)	43 (46.7 %)	4.37	.648
We are ever in contact with our clients	0 (0.0 %)	0 (0.0%)	0 (0.0%)	29 (31.5 %)	63 (68.5 %)	4.69	.765

Source: SPSS version 20 generated results.

1. Strongly Disagree. 2. Disagree. 3. Neutral.
4. Agree. 5. Strongly Agree.

Table 1 results indicate that popular of the participants, (75%) Agreed; (16.3%) strongly agreed that

they have developed a system which recovers loans from guarantors in case of overdue dates of payment. In the same line, (4.3%) disagreed whereas (4.3%) were not sure about this opinion. This confirmed by (mean = 4.05; and the standard deviation = 0.783). This is an indication that SACCOs in Mbarara city have developed a system of recovering loans from guarantors in case the borrowers fail to meet their obligations on the agreed duration. This view is supported by one of the key informants who had this to say:

“We ensure that every member who applies for a loan has a guarantor who happens to be a member of this SACCO with adequate shares and economically stable, well known in the area where he/she stays. Such guarantors act as a security, in case the borrower fails to refund our money we go for the guarantor, we ensure that every guarantor stands in for only one borrower at a time. (MNG C3)”.

The scrutiny also shows that SACCOs effect penalties customers who in case a default (59.8%= strongly agreed, 34.8%= agreed) with this statement. On the same view (3.3%) disagreed whereas (2.2%) disagreed with this argument. This is further stressed by (Mean= 4.54; Standard deviation= 0.674). This analysis designates that SACCOs have taken a significant step of punishing the borrowers who fail to meet their financial obligations as a means to minimize loan default.

In addition, popular of the respondents (65.5%) strongly agreed that they strictly maintain collection deadlines from debt holders whereas the rest (34.8%) agreed with this opinion (Mean= 4.63; Standard

deviation= 0.848). This analysis shows that SACCOs are strict on loan collection from debt holders as means to minimize loan delinquency related issues in their operations.

With regard to discounts made to make timely payments, majority of the participants (54.3%) agreed with this opinion, (27.2%) strongly agreed, (10.9%) disagreed whereas (7.6%) were not sure (Mean= 3.05; standard deviation= 0.397). This analysis shows that SACCOs give discounts to its clients as incentives to enable them to get motivated to meet their deadlines.

Results additionally show that all respondents (47.8%= strongly agreed; 42.4%= agreed) that they apply tougher collection efforts to minimize slow payments (Mean=4.38; Standard deviation= 0.948). This scrutiny implies that in order to manage loan delinquency, SACCOs have adopted tougher loan collection procedures as a measure to counter cases of default in delays towards paying back.

Also, results show that majority of the respondents (53.3%) strongly agreed that they closely monitor loans that fall under arrears whereas the rest (46.7%) agreed with this argument (Mean=4.55; Standard deviation= 0.700). This analysis shows that loans that fall under arrears are closely monitored to devise means of recovering them as soon as possible.

In addition, majority of the participants (46.7%= strongly agreed; 43.5%= agreed) that clients who delay to pay are fined (Mean= 4.37; Standard deviation= 0.648). On this, (9.2%) were not sure about this argument. This is an indication that SACCOs are using non-lenient measures of managing loan delinquency in their

operations. This is in support of the key informants' views who had this to say:

“Members are required to observe their deadlines and respect them as this is agreed upon at the beginning. In an event that the borrower has failed to meet the obligation in terms of observing the payment debts. Such fines and penalties have helped us in enforcing discipline among our borrowers. (MNG K10)”.

The analysis further shows that SACCOs regularly review of debt collection procedures as agreed upon by the participants in this study (15.6%= strongly agreed; 55%= agreed). This is confirmed by (Mean =3.86; and the standard deviation = 0.659). This shows that the SACCOs take a kin interest in revising debt collection procedures in order to eliminate loopholes that may arise within these procedures.

In addition, (45.9%= strongly agreed; 45%= agreed) of the participants agreed they analyse particular cases that arise (Mean= 4.37; Standard deviation= 0.648). This shows that cases which arise in debt collection procedures are critically analysed to avoid escalating challenges in the process.

Finally, the findings revealed that popular of the respondents (68.5%) strongly agreed that they are ever in contact with their clients from time to time whereas the rest (31.5%) agreed with this opinion (Mean=4.69; Standard deviation= 0.765). This analysis shows that SACCOs are ever in touch with their borrowers as a means to make contact follow-up towards timely payment of their loans.

Financial performance of the SACCOs

Statements from the questionnaire together with their responses which were scored by the use of a five-point Likert scale were used by the research for analysis. Analysis was done and presented using statistical description by use of percentages, mean and standard deviation.

Elicited results are presented in Table 2 below:

Table 2: Statistical Description of Financial performance among SACCOs

Statements							
We consider Profitability as an indicator of f. p.	0 (0.0 %)	0 (0.0 %)	0 (0.0 %)	25 (27.2 %)	67 (72.8 %)	4.71	.858
Membership increment predicts the f.p.	0 (0.0 %)	0 (0.0 %)	0 (0.0 %)	15 (16.3 %)	77 (83.7 %)	4.84	.764
Share capital growth is an indicator of f.p.	0 (0.0 %)	0 (0.0 %)	8 (8.7 %)	7 (7.6 %)	77 (83.7 %)	4.76	.692
We consider Increase in savings an	0 (0.0 %)	0 (0.0 %)	0 (0.0 %)	7 (7.6 %)	85 (92.4 %)	4.93	.862

indicator of
f.p.

ROE is our indicator of competence to generate profit	0 (0.0 %)	0 (0.0 %)	24 (26.1 %)	25 (27.2 %)	43 (46.7 %)	4.21	.817
Our Return on investment predicts f.p.	0 (0.0 %)	0 (0.0 %)	7 (7.6 %)	24 (26.1 %)	61 (66.3 %)	4.61	.824
The level of our loan recovery predicts f.p.	0 (0.0 %)	0 (0.0 %)	0 (0.0 %)	27 (29.3 %)	65 (70.7 %)	4.72	.753
Our Growth in market share is an indicator of this SACCOs' financial performance	0 (0.0 %)	7 (7.6 %)	17 (18.5 %)	32 (34.8 %)	36 (39.1 %)	4.06	.926

Source: Generated results from SPSS version 20.

Results above indicate how popular of the participants (72.8%) highly decided that profitability is an indicator of financial performance within the SACCO whereas the least (27.2%) agreed with this statement. This indicates that profitability within the SACCO business is a clear signal that the SACCO is performing financially well.

Also, the popular of the respondents (83.7%) strongly agreed in harmony that membership increment predicts the financial performance of the SACCO whereas the rest

(16.3%) agreed with this statement (Mean 4.84; Standard deviation 0.764). This analysis confirms that when members increase in a SACCO, it is an indication of increased financial performance and the reverse is true.

Also, the popular of the participants (84.4%= strongly agreed; 7.3%= agreed) that share capital growth within the SACCO is an indicator of financial performance (Mean= 4.76; Standard deviation= 0.692). This shows that share capital growth is a result of improved financial performance in SACCOs and vice-versa.

The analysis further shows that popular of the participants (92.4%) strongly decided that an increase in savings is an indicator of financial performance within the SACCO whereas the rest (7.6%) also agreed (Mean= 4.93; Standard deviation= 0.862). This implies that the growth in savings is an indicator of improved financial performance and the reverse is true.

Results also indicate that majority of the participants (46.7%) strongly decided that ROE clearly designates SACCOs' competence to engender profits from capital while (27.2%) also agreed (Mean= 4.21; Standard deviation= 0.817). This is an indication that when the return on equity is high, the SACCO financial performance will also be high.

It was found out that popular of the participants (45.9%= strongly decided; 29.4%= decided) that return on investment predicts financial performance within the SACCO (Mean= 4.61; Standard deviation= 0.824). This analysis shows and confirms how higher returns on investment clearly specify profitability of SACCOs.

About loan recovery, the popular of the respondents (70.7%) strongly agreed that the level of loan recovery predicts the financial performance of the SACCO while (29.3%) also agreed with this statement (Mean= 4.72; Standard deviation= 0.753). This shows that the capability to recover loans is an indication of excellent financial performance in SACCOs operations.

Finally, the majority of the participants (38.5%= strongly agree; 36.7%= agreed) that growth in market share is an indicator of SACCOs financial performance (Mean= 4.06; Standard deviation=

0.926). On the same view, (17.4%) were not sure about this argument whereas the least (7.3%) disagreed. This analysis shows that growth in market share is an indication that SACCOs are financially performing well.

Correlations Results

Results from the table below show that a slight but positive association exists amid loan collection procedures and financial performance of SACCOs ($r=0.259$, $p<0.001$). This observation depicts clear evidence that loan collection procedures have an impact on financial performance of SACCOs. Therefore, the verdicts reveal that, if loan collection procedures are conducted diligently there are higher chances of improving financial performance among SACCOs in Mbarara city. A signal that any single component positive change in loan collection procedures stimulates a positive adjustment in the SACCOs financial performance of by a margin equal to 25.9%.

Table 3: Loan collection procedures and Financial Performance of SACCOs in Mbarara City

		Loan Collection Procedures	Financial Performance
Loan Collection procedures	Pearson relationship	1	.259**
	Sig. (2-tailed)		.001
	Number	92	92
Financial Performance	Pearson relationship	.259**	1
	Sig. (2-tailed)	.001	
	Number	92	92
**. Significant Correlation at the 0.01 level (2-tailed).			

Source: SPSS version 20 generated results.

Discussion

Loan collection procedures and financial performance of SACCOs in Mbarara City.

Findings obtained in relation to the association between loan collection procedures amid financial performance of SACCOs in Mbarara city revealed that there is a slight but positive relationship exist. This shows that much as loan collection procedures are important in managing loan

delinquency among SACCOs, they are still lacking in the mode of implementation or the strategies themselves may not be compatible to the expectations of the borrowers' other ways the contribution of loan collection procedures seem not much towards the financial performance as per the revealed study findings.

However, the revelation of a positive though weak association signifies that when improvement is done in the collection procedures by the SACCOs, there are chances of financial performance improvement. The undertaking findings agree with those of (Paul & Musiega, 2020), (ANTONY et al., 2019) and (NJERI MURAGE, 2018) who conducted studies regarding the same phenomenon and resolved that a positive relationship exist between the two variables under consideration for this particular study.

Kamau, 2015, on realising a positive association between the loan collection procedures with financial performance, recommended SACCOs to greatly rely on loan delinquency management strategies in order to minimize loan default and generate profits for better financial performance of SACCOs.

Reviewing the policies regarding the loan repayment is also very important as it puts into consideration the economic concerns of the borrowers to ensure flexibility in operation for the good towards loan repayment. This calls for regular review of collection procures to best suit the interest of the SACCO in ensuring loans are fully collected as they fall due (Makupe, 2016).

Conclusion

From the present undertaking judgment and discussion, a conclusion can be derived that a weak, significantly positive relationship occurs amid Loan collection procedures besides financial performance of SACCOs ($r = 0.259^{**}$ $p < 0.001$). These verdicts statistically reject the hypothesis on which the study was anchored and therefore, an authentication can be taken that loan collection procedures are imperative in the process of loan management regarding collecting back the loans from the borrowers. The issue in giving out the loan by the SACCO is to ensure that it is repaid back on time in order to realise a profit in terms of the total collection which incorporates the interest charged on loan and in most cases considered as profits hence better financial performance of the SACCOs.

Recommendations

Loan collection procedures should be regularly revised and modified to meet the convenience of the borrowers in paying back the loans as this would motivate them to pay with ease hence maximizing the loan collection rate and minimizing loan delinquency possibilities thus gearing a positive financial performance of SACCOs.

Acknowledgment

The authors acknowledge the support rendered by the Directorate of Graduate Studies, Research, and Innovations at Bishop Stuart University. Also, the contributions made by the respondents in providing relevant phenomenon feedback made this work a triumph.

Conflict of Interest declaration

There is no declaration of interest by the authors.

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