International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426

Effects of Free Day Secondary School Programme on Students' Participation in Agriculture in Mbita Sub-County, Kenya

Odero George Nyakumba[1], Dr. J. Obara[2], Dr. S. Maina[3]

[1]Scholar, Master of Science in Agricultural Education of Egerton University

[2, 3]Department of Agricultural Education and Extension, Egerton University

Abstract: ***Although many countries, including Kenya, are implementing policies aimed at increasing enrolment, access and the general participation in secondary school, agriculture included, to some extent, Free Day Secondary School Programme has not achieved the objectives of increasing enrolment and access in secondary schools. Moreover, studies on how this programme has influenced enrolment and access of students in agriculture in secondary schools in Mbita sub-county remain scarce and inconsistent. The purpose of this study was to investigate the effects of Free day secondary school programme on students' participation in terms of enrolment and access to agriculture in secondary schools in Mbita sub-county, Homa-bay county, Kenya. The study will also investigate students' participation in agricultural activities like agricultural shows, field days, and membership in 4-k club. The study design was Cross sectional survey. The target population of study was 106 participants in public secondary schools that were in existence prior to the year 2008 when Free day secondary school programme was implemented. The accessible population was the principals (51), teachers of agriculture (51) and the quality assurance and standards officers (4). An interview guide and two sets of self-administered questionnaires, was developed for data collection. These are QUASOs interview guide, principal's questionnaire and the agriculture teacher's questionnaire. The researcher presented the instruments to the supervisors and experts in the department of agricultural education and extension at Egerton University in order to ascertain their face and content validity. The instruments was piloted with 30 principals and 30 teachers of agriculture in 30 schools in Rachuonyo North sub-county. Rachuonyo North sub-county was chosen for piloting because it had similar conditions and characteristics as Mbita sub-county. Reliability of the questionnaire was established by computing Cronbach's coefficient alpha. To be accepted for use the instrument needed to have an alpha reliability coefficient of at least 0.70 at confidence level of 0.05 set. The data was analyzed with the aid of Statistical Package for Social Sciences (SPSS v.22) to provide descriptive and inferential statistics presented in terms of tables, means, t-test, chi-square, and graphs. The study may give an insight into the Free Day Secondary School Programme and how it affects the students' enrolment, access to agriculture resources and overall participation in agriculture in secondary schools. This may guide Government policy makers, Ministry of Education, and school administrators in providing students with supportive learning agriculture subject environment.***

List of Abbreviations and Acronyms

AIDS - Acquired Immuno-deficiency Syndrome
EFA - Education for All
FDSSP - Free Day Secondary School Programme
FPE - Free Primary Education
GER - Gross Enrolment Ratio
KICD - Kenya Institute of Curriculum Development
KNEC - Kenya National Examinations Council
MDGs - Millennium Development Goals
MoEST - Ministry of Education, Science and Technology
NACOSTI - National Commission for Science, Technology and Innovations
NGOs - Non-Governmental Organizations
QUASO - Quality Assurance and Standards Officer
ROK - Republic of Kenya
SEBF - Secondary Education Bursary Fund
SSA - Sub-Saharan Africa
SDGs - Sustainable Development Goals
TSC - Teachers Service Commission
UNESCO - United Nations Educational, Scientific and Cultural Organization

1. Introduction

1.1 Background of the Study

The provision of agriculture as a subject in secondary schools and training to all Kenyans was fundamental to the success of the Kenya Government's overall development strategy of attaining the Vision 2030, as well as transforming Kenya into a middle income economy, providing high quality life to all its citizens in a clean and secure environment. It was in pursuit of this goal that the Government of Kenya, through Kenya Education Sector

Support Programme (KESSP), introduced a number of interventions in the education sector, agriculture subject included aimed at providing quality education in agriculture subject in secondary schools and enhancing student participation rates in terms of students access and enrolment in agriculture subject in secondary school, Ministry of Education Science and Technology (MoEST) (2005). The interventions included, among others; establishing the Secondary Education Bursary Fund (SEBF); introduction of Free Primary Education (FPE); and lately, the introduction of a waiver on tuition and operational costs for students in all public secondary schools, commonly referred to as Free Day Secondary School Programme (FDSSP).

The introduction of FDSSP in Kenya had seen an increase in the demand for agriculture in secondary schools. The programme, which was started in 2008, had led to an increase in enrolment in agriculture. Kenya's Ministry of Education noted that, there had been improvement in secondary school enrollment in agriculture since 2008. In 2007 for instance, records from the ministry education showed that there were 41,000 students in secondary schools in Mbita sub-county enrolled in agriculture subject. The number increased tremendously to 62,000 in 2010 in a span of three years, Ministry of Education Science and Technology (2005).

Financing secondary schools agriculture was important as it constituted an investment in education that yields social and private returns (Bregman & Stallmeister, 2012). There were four main reasons for investing in secondary agriculture: for economic growth and development; contributes to the socialization process among young people; provides private returns and offers young people the opportunity to acquire human capital; and the demand for secondary agriculture was increasing. Secondary agriculture subject was mainly funded by the government in many countries of the region.

Foreign aid was another important source of funding for some countries. Other major sources of funds included household sources and private entities. However, there was limited data with regard to these other sources in the region. On average, in 2008, Central Asia allocates 3.2 per cent of GDP to education, agriculture subject included, East Asia 3.3 per cent and South and West Asia 3.7 percent. Central Asia, New Zealand and Vanuatu in the Pacific and Maldives in South Asia allocated a little above 6 per cent of their GDP. Bhutan spends above 5 per cent of its GDP on education. Most other countries spend less. In 2008, Cambodia spent below 1.6 per cent of its GDP on education. In Australia, government schools educated about two-thirds of their students, with the other third in independent schools, a proportion which was rising in many parts of Australia (Harrington, 2011). Government schools were free although most schools charged "voluntary" contributions, while independent schools, both religious and secular, charged fees.

In most countries of the world, education is largely financed by the government. A commonly agreed rationale for public intervention in education is that it fosters important external benefits for societies. For example, a number of studies have pointed out the positive social impact of education, thus reinforcing arguments in favour of government interventions. In all countries of the Asia-Pacific region, increasing access to secondary education seems to be one of the policy priorities for governments (Di Gropello, 2006). Education is largely funded by the government – central, local, state and provincial – in many countries of the region. Foreign aid is yet another important source of funding for some countries. Other major sources of funds include household sources and private entities. However, there is limited data with regard to these other sources in the region. On average, in 2008, Central Asia allocates 3.2 per cent of GDP to education, East Asia 3.3 per cent and South & West Asia 3.7 per cent. Kyrgyzstan in Central Asia, New Zealand and Vanuatu in the Pacific and Maldives in South Asia allocate a little above six per cent of their GDP. Bhutan spends above 5 per cent of its GDP on education. Most other countries spend much less. In 2008, Cambodia spent below 1.6 per cent of its GDP on education. In Australia, government schools educate about two-thirds of Australian students, with the other third in independent schools, a proportion which is rising in many parts of Australia (Harrington, 2011). Government schools are free although most schools charge what are known as "voluntary" contributions, while independent schools, both religious and secular, charge fees.

In Mauritius, free secondary education, agriculture included was introduced in 1977 (Di Gropello, 2006) Prior to1977, scholarship winners of primary school-leaving examinations were entitled to free education in state schools. The government promoted basic education as part of its social-economic development strategy. The education was tuition free with parents paying for extra tuition, uniform and textbooks, 52 percent of the children received secondary education.

Pressure on governments in Sub-Saharan Africa (SSA) to expand secondary education is growing. Increasing numbers of students flowing from expanded primary education and the need to improve the educational levels of the labour force to benefit from a globalizing economy make it inevitable that governments in SSA have turned their attention to expanding and improving secondary education (World Bank, 2007). In Sub-Sahara Africa, Lewin (2008) carried out a study on enrolment trends in agriculture classes. The study found that secondary schools in the region enrolled 25 million of the regions 93 million children of secondary school age in agriculture classes and many of them attended regularly. For the region as a whole, less than a third of the cohort enrolled in upper secondary grades. The gap in secondary enrolment, access and participation rates in agriculture between Sub-Saharan Africa and other developing regions increased between 1990 and 2000 though it's slowly beginning to narrow. Lewin (2008) further found out that despite heavy government subsidization of secondary agriculture, enrolment rates still remained low, relative to secondary school-going age.

In Ghana a study by World Bank (2002) noted that after gaining independence in 1957, the government in 1961,made primary school (6 years) and secondary school (4 years) fee free (subsidized) and compulsory.

According to Nsumba-Lyazi (2010), Uganda had undertaken educational reforms that saw the country offered free secondary education, agriculture subject included to 250,000 students government programme aimed at getting 90 per cent of children who pass their primary school exams to go on to secondary education. It's a pro-poor programme that was tailored to help rural communities develop, so they could have people who are educated in agriculture, who could plan and who could participate in economic activities. The move came after an earlier initiative that aimed to give free universal primary education. Many children are prevented from continuing their education beyond primary school because their families were unable to afford the average $130 per year fees. Ugandan education system, agriculture formed part of the core curriculum in secondary schools. It was compulsory for all students joining government-sponsored schools.

The Government of Kenya officially launched the Free Day Secondary School Programme, agriculture subject included, at the beginning of 2008 because many Kenyan children who completed primary school were not getting access to secondary school agriculture subject included, mostly because of school fees, Ministry of Education Science and Technology (MoEST, 2005). The underlying assumption of the new programme was that all children who were academically qualified for secondary education were able to gain access and participate in agriculture in secondary schools Mokua (2013). There was limited studies on how this programme had effects on student's enrolment, access and participation in agriculture subject in secondary schools in Mbita sub-county, Homa-bay County, Kenya. Thus, the study was to determine the effects of Free Day Secondary School Programme on students' participation in agriculture subject in secondary schools in Mbita Sub-County, Homa Bay County, Kenya.

From studies reviewed in the background, it is evident that a number of countries have implemented policies aimed at improving access and participation in agriculture subject education in secondary schools through government subsidies. Agriculture subject in secondary schools was a key component of the secondary education in most countries. However, the studies did not give in-depth focus on enrolment, access to agriculture resources, and overall participation in agriculture with respect to Free Day Secondary School Programme in these countries. Thus, the aim of this study was to determine whether Free Day Secondary School Programme had enrolled more students to access secondary school agriculture subject. The research also determined the availability of sufficient agriculture subject resources in secondary schools with reference to Mbita sub-county, Homa-bay County, Kenya.

1.2 Statement of the Problem

Free day secondary school programme, was introduced in 2008 as a result of Kenya's efforts to attain education, agriculture included, for all by 2015 as indicated in the sessional paper No.1 of 2005. This was to reduce cost of education, agriculture included, to parents, increase participation in terms of enrolment and access to agriculture in secondary schools in line with the United Nations aim to achieve Sustainable Development Goals (SDGs) by 2030. Despite the Kenya government efforts to expand education opportunities for all, through the introduction of Free day secondary school programme, and the high government expenditure to sustain the programme, low enrolment in agriculture subject and also students not continuing to take agriculture subject in forms three and four as one of their subjects in secondary schools, remains high, therefore, low access and participation by students in agriculture subject in secondary schools. Besides, no empirical studies had been undertaken to assess the effects of Free Day Secondary School Programme on students' participation in terms of enrolment and access to agriculture subject in secondary schools in Mbita sub-county. Thus, this research was intended to find out the effects of Free Day Secondary School Programme, on student's participation in terms of enrolment and access to agriculture subject, teaching and learning resources in public secondary schools in Mbita sub-county, Homa-bay County, Kenya.

1.3 Purpose of the Study

The purpose of this study was to determine the effects of Free Day Secondary School Programme on students' participation in agriculture in Mbita sub-county. The study intended to determine whether, Free Day Secondary School Programme, had enabled more students to participate in agriculture in secondary schools. The research also intended to determine the availability of agriculture subject instructional materials in secondary schools in Mbita Sub-County, Homa Bay County, Kenya.

1.4 Objectives of the Study

The specific objectives of the study are to:

1) Determine the effect of Free Day Secondary School Programme on student's enrolment in agriculture subject in secondary schools in Mbita Sub – County.
2) Investigate the effect of Free Day Secondary School Programme on students' access to agriculture instructional materials in secondary schools in Mbita sub-county.
3) Investigate the effects of Free Day Secondary School Programme on student's participation in agriculture in secondary schools in Mbita sub-County.
4) Determine the relationship between student's access to agriculture teaching learning resources and their participation in agriculture subject in secondary schools in Mbita sub- County.

1.5 Hypotheses of the Study

The following hypotheses will be tested during the study:

$H0_1$: There is no significant differencein students' enrolment in agriculture in secondary schools in Mbita-Sub County before and after the introduction of Free day secondary school programme

$H0_2$: There is no significant difference in students' access to agriculture instructional materials in secondary schools in Mbita sub-county before and after the introduction of Free Day Secondary School Programme

$H0_3$ There is no significant difference in student's participation in agriculture in secondary schools in

Mbita sub-County before and after the introduction of Free day secondary school programme

$H0_4$ There is no significant difference in the relationship between students' access to agriculture teaching learning resources and their participation in agriculture subject in secondary school in Mbita sub-county before and after the introduction of Free Day Secondary School Programme

1.6 Significance of the Study

The findings of this study was to help the education policy makers, the Ministry of Education, Kenya Institute of Curriculum Development and other stakeholders in secondary schools, with a framework for review of funding students for secondary education agriculture included, in Kenya. Besides, it may help in providing quality education and enhance students' access and participation in agriculture subject in secondary schools. It was also to know the effects of FDSSP on the available resources in public secondary schools and hence the government was to use the findings to improve on the weak areas of the subsidized secondary education agriculture subject included. The research provided useful findings on Free Day Secondary Education programme that would be useful to the researchers for further research. It has helped in providing quality agriculture as a subject and enhance students' access and participation in agriculture in secondary schools. It has made secondary school agriculture subject affordable for most parents. Students from poor households whose parents cannot meet the costs of agriculture are likely to enroll and access agriculture classes in secondary schools.The findings of this study are expected to help the government to know the effects of free day secondary school programme on the available resources in public secondary schools and hence the government can use the findings to improve on the weak areas of the free day secondary school programme. The research also provided useful findings on free day Secondary school programme that would be useful to the researchers for further research.

1.7 Scope of the Study

The focus of this study was to investigate the effects of Free Day Secondary School Programme on students' participation in agriculture subject in public secondary schools in Mbita sub-county, Homa-bay County, Kenya which offered agriculture as a teaching subject and have been in existence prior to the year 2008 when the Free Day Secondary School Programme was implemented. Mbita sub-county has 82 public schools of which 51 will be chosen for the study.

1.8 Limitation of the Study

1) The research design was cross sectional survey which entailed sampling people's opinions that vary from time to time and place to place. This was addressed by having a large randomly selected sample.
2) The study findings was limited to public secondary schools that had been in existence prior to the year 2008 when Free Day Secondary School Programme was implemented.

1.9 Assumptions of the Study

This study was guided by the following assumptions:
1) The schools had accurate data on students' enrollment in agriculture in Mbita sub-county.
2) All the students were to participate in agriculture subject in secondary schools in Mbita sub-county with the introduction of FDSSP.
3) The respondents would be co-operative and honest in their responses and the sampled schools will be a fair representation of the public secondary schools in Mbita sub-division.

1.10 Definition of Terms

Access : Availability of opportunities in all public secondary schools that offer agriculture as one of their subjects for those students who are eligible.

Effect: A change that is as a result or consequence of an action. This term will be used in this study to refer to the state of affairs that will be produced in participation in agriculture in secondary schools by the implementation of Free Day Secondary School Programme.

Enrolment: According to Ministry of Education Science and Technology (MoEST), (2005), this refers to the entry into school by a student based on specific criteria. This term will be used in this study to refer to eligibility for students' admission into a public secondary school in Kenya that offers agriculture as one of the subjects.

Participation: This is the taking part in a process. The state of being related to a larger whole, the process during which individuals, groups or organizations are consulted about or have the opportunity to become actively involved in a programme of activity, goal setting, profit sharing, team work and other such measures through which a firm attempts to foster or increase individuals commitment to collective objectives. This term will be used in this study to refer to the students who are enrolled in agriculture in secondary schools and the extent to which they access agriculture teaching and learning resources and the agriculture activities. This term will also be used to show the extent to which the students are involved in membership in 4-k club, attending agricultural shows and exhibitions.

Teaching learning resources: These are tools that help teachers teach and students learn. They are the texts, videos, software, and other materials that teachers use to assist students to meet the expectations for learning defined by the curriculum. In this study, the term will be used to refer to materials and resources that are used to teach and learn agriculture subject in secondary schools.

Resources: Any human or physical utility that aid learning of agriculture in a secondary school.

Free Day Secondary School Programme: Refers to the waiver on tuition fees by the government for secondary school level. The parents are expected to meet other requirements like lunch, transport and boarding fees for those in boarding schools, besides development projects. A

programme in which the government meets part of the cost of secondary school per child specifically, tuition costs.

2. Literature Review

2.1 Introduction

The chapter was reviewed under the following sub-titles: secondary school enrolment trends in agriculture, student access and participation in agriculture in secondary schools. The chapter also covered the theoretical and conceptual frameworks on which the study is based.

2.2 Free Day Secondary School Programmein Kenya

The provision and expansion of quality secondary education, agriculture included, reduced as resources were not enough and that majority of parents were unable to meet the cost of secondary education by unnecessary high indirect costs required by schools. Government of Kenya (2005) outlines some of the policies adopted in order to reduce the fees burden which included: Integrating Secondary education as part of basic education agriculture included. Promoting development of day schools to expand access and reduce costs to parents. Providing targeted instructional materials for agriculture to needy public secondary schools.

The Ministry of Education (2007) adopted the above policies through provision of teachers, issue of bursary funds and promotion of development of day schools to expand access and reducing the cost to parents. According to the MOE (2003), the Gross Enrolment Ratio for secondary schools agriculture declined from 29.4% to 22.2% between 1990 and 2000. This is attributed to high cost of materials for teaching agriculture, school uniforms, development levies and extra expenses for agriculture project, private tuition, and poverty at the household level, HIV/AIDS pandemic, among others. The enrolment in agriculture increased from 38,836 in 2002 to 86,764 in 2007. In 2008, the enrolment increased substantially by 15.0% to reach 94,114. The enrolment in agriculture in public secondary schools grew from 42,608 students in 2004 to 94,114 in 2008.

Table 1: Public Secondary Schools Enrolment in Agriculture

Year	2004	2005	2006	2007	2008
Number of Students	42,608	49,544	63,046	86,764	94,114

Source: Ministry of Education, (2009)

The Kenya government's main intention was that all children access secondary school agriculture subject, without discrimination in accordance with the United Nation's charter of 1947 where every child has a right to education. The availability and adequacy of agriculture learning resources such as teaching force, physical facilities and instructional materials influence quality of agriculture in secondary schools.

2.3 Students Enrolment Trends in Agriculture in Secondary Schools

According to Muganda (2009) subsidization of education including agriculture subject by governments and states all over the world was pegged on the desire to address the social problems of access, participation and poverty. In this breath, several studies done both in the developed and developing countries all point out to the fact that a subsidy affects, among other educational indices access, participation and enrolment in agriculture subject in secondary schools.

In Netherlands, UNESCO (2008) carried out a study on the effects of public subsidy to basic education agriculture subject included on access, participation and enrolment, among other variables. The study found a significant negative effects of public funding of education on enrolment of males into agriculture than in females. The findings of the study indicated that while the enrolment trends of females tended to increase due to government subsidy, the reverse was true for male students. The study concluded that in Netherlands, the relationship between government subsidy and enrolments in agriculture in secondary schools is not statistically significant.

In Australia, a study by Harington (2011) observed that the Australian government decision to subsidize education has positively influenced enrolment in agriculture in secondary schools. Official data demonstrate that private schools enrolments in agriculture were in steady decline in Australia during the 1960s before government subsidies were introduced and then increased steadily as subsidies from both federal and state governments flowed to private schools. Unlike the Australian case, this study is on public schools that depend on government subsidy to run tuition operations.

In many developing countries, the availability of textbooks and other reading materials is limited. UNESCO (2007) observed that while the student textbook ratio was a significance measure of education quality, many classrooms in developing countries especially in poor and rural areas possess only one textbook, typically possessed by the teacher. In Africa, many studies have been done on the effects of government subsidies on educational indices. In Ghana, for example, Loyd and Brandon (2012) concluded that the implementation of government subsidy in secondary school resulted into the enrolment in agriculture subject of many overage pupils, while for the school age pupils; the Gross Enrolment Ratio (GER) has been staggering at 16.2% per year. It was therefore concluded that there was a positive significant relationship between government subsidy and enrolment in agriculture. In Zambia a study by World Bank (2008) observed that, following the government subsidization, the country experienced an increase in GER from 59% at independence in 1964 to above 100% in the early 60s. The intake rate in grade I hovered at 100% during 1970-77 periods peaking in 1972 at 109% for boys and 102% for girls. A steady decline in the GER began in the early 1980s and continued in 1990s Volan (2003) still on Zambia observed that throughout the 1980s and 1990s the economic crisis hit the education system hard. Primary and secondary schools experienced a difficult time in trying to maintain enrolment, participation; and access. The government was asked to intervene and subsidize education to maintain the growth momentum in enrolment and participation (World Bank, 2007).

In Kenya, according to Koech (1999) the Convention on the Rights of the Child, of which Kenya was a party, provided the basis for an inclusive education system where no child was excluded or marginalized in any programme. As such, it was upon the government to ensure that all children had equal access to quality agriculture subject education. According to Mensch and Lloyd (1998), distance to school also often hindered some children from gaining access to secondary school education, agriculture included. This was particularly so in rural areas where population density was relatively low and households were widely scattered. In such a context, access to agriculture subject in secondary school, may mostly rest on accessibility of schools. For other children, lack of schools they wish to attend become the reason for non-attendance to agriculture in secondary school (Hunt, 2008). The foregoing literature did not give due attention to the aspect of agriculture in secondary schools. However, given that the above factors were important in influencing enrolment and access to agriculture in secondary schools in Mbita sub-county, the researcher established the enrolment and access to agriculture in secondary schools in Mbita sub-county before and after the implementation of the Free Day Secondary School Programme, with specific reference to agriculture education. Further, Kiptoo (2012) in an assessment of the effects of subsidies on educational outputs in Kenya concluded that there was a relationship between the Free day secondary school programme and outcomes of agriculture subject educational attainment viz a viz enrolment, access, and the overall participation. There was increase in participation in agriculture in terms of enrolment, access and learning resources in secondary schools from 2008 when FDSSP was introduced. However, in the ASAL Turkana County, the Free Day Secondary School Programme has had minimal influence on enrolment, access and participation in agriculture subject in secondary schools.

2.3.1 Student access to agriculture subject in secondary schools

The general purpose of public subsidization of education was to raise primary and secondary participation in education, agriculture subject in secondary schools included and also address the challenges that negatively affected student participation. World Bank (2005) observed that transition from one level to the next depend on the one hand of the availability of school places within realistic reach (geographically and economically) and on the other hand an individual decisions of students and their families. The individual decisions depend on a series of structural factors; students must be adequately prepared from previous schooling and going to school must be considered beneficial both by the individual student, his/her family and the community. According to Olembo (1992) students dropping out of secondary school and also dropping out of agriculture subject classes were a major problem facing the world today. The main causes of school dropouts were personal factors, home and school stability, school experiences, social behavior, and rebellion. Personal problems affecting students seem to be the main cause for students to drop out of secondary school. The dropout rate was declining each year, yet it was still a severe problem in Kenya.

In Pakistan, Mingat and Tan (2006) in a study established that the access and enrolment rates in agriculture subject by students in schools due to the government subsidy was 75% for boys and 66% for girls. This difference was explained to be due to the technical nature of agriculture and thus, the girls opted for other subjects other than Agriculture. Lewin and Cailloids (2011) in a study of participation rates, in Nigerian secondary schools that received government subsidy found that with the subsidy, the access and enrolment rates of students in agriculture subject was high, standing at 88%. However, the enrolment and access rates in agriculture classes were lower than the general access and enrolment rates, standing at 49%. This was explained to emanate from the fact that Agriculture is an optional subject and thus many students opt for other subjects due to reasons such as attitude towards the agriculture subject, and career preferences.

2.4 The provision of agriculture instructional materials

Lockheed (1990) said that the intended curriculum cannot be easily implemented without the necessary instructional materials. The quality and adequacy of instructional materials affect the quality of education and how effectively the curriculum is implemented. These materials provided information, organized the scope of coverage and the sequence of information presented and provide opportunities for students to use what they have learnt. Such instructional materials included textbooks, teachers' guides, computers, maps, chalk and exercise books among other teaching and learning aids. Mbiti (2007) alludes that teachers cannot teach well without such supporting materials, no matter how qualified they are. Both the quantity and quality of books should be improved. The implementation of Free Day Secondary School Programme in 2008, saw the increase in agriculture instructional materials that led to the increase in enrolment and access to agriculture subject in secondary schools in Mbita sub-county.

2.5 Education in agriculture subject as an investment

Education in agriculture subject in secondary school, like other forms of investment in human capital, can contribute to economic development and raise the incomes of the poor just as much as investment in physical capital such as transport, communications, power and irrigation. The World Bank, which provides financial and technical help for the development of poor countries, has long recognized the importance of investment in agriculture subject in secondary school and has been active in this field since. Because the resources are limited, some opportunities have to be sacrificed when investment decisions are finally made. These lost opportunities can be regarded as part of the cost of the investment in health, industry or agriculture. This means that investment choices must be based both on cost-benefit analysis, which is concerned with external efficiency and the cost effectiveness analysis, which measures internal efficiency.

2.6 Theoretical Framework

This study was anchored on the Systems Theory. According to Miller (1998), a system consists of a set of components

that function and relate in some regular and predictable manner. These components consist of the systems inputs, the system processes and the system outputs. Owen (1998) argues that these parts of a system are highly interactive and mutually interdependent that risk of failure exists when any one of the components is emphasized at the expense of the others.

Conceptualized in a systems context, agriculture in secondary schools like all other systems must have adequate and quality inputs. These include among others, students enrolment and participation, trained teachers of agriculture, agriculture demonstration plots, text books for teaching learning agriculture, and money for agriculture academic trips. The school also needed motivated students taking agriculture and motivated teachers of agriculture. The outputs included enhanced students enrolment, participation and access to agriculture in secondary schools.Education systems should be designed to remove barriers of any nature that can prevent bright students from lower economic backgrounds from developing their own talents. Free day secondary school programme is aimed at ensuring that every child has an equal opportunity to access secondary school education agriculture subject included regardless of his/her socio-economic status. Without the Free Day Secondary School Programme in Kenya, then many parents will not be able pay for their children school fees and this will actually led to low transition rates from primary to secondary since the fees will discriminate poor families from access to secondary school education agriculture subject included.

2.7 Conceptual Framework

The study was conceptualized on an interaction between an independent variable, and two dependent variables. The independent variable in the study was Free Day Secondary School Programme. The measurable indicators for Free Day Secondary School Programme were time of release of funds to the schools by the ministry of education and the mode of release of funds. The study conceptualized that Free day secondary school programme had an effect on students enrolment, students access to secondary school agriculture subject and hence overall students participation in agriculture in secondary schools. Thus, students' participation in agriculture in secondary schools in terms of students' enrolment, and access to agriculture instructional materials, were the dependent variables in the study. The intervening variables such as school administration, existing educational resources, parents and the community, however produced some effects on the results of the study. Intervening variable was a variable that affected the direction and/or strength of the relationship between an independent variable and a dependent variable. The effects of the intervening variables on the results of the study was controlled by including the entire population in the study that is 51 principals, 51 teachers of agriculture and 4 quality assurance and standards officers.

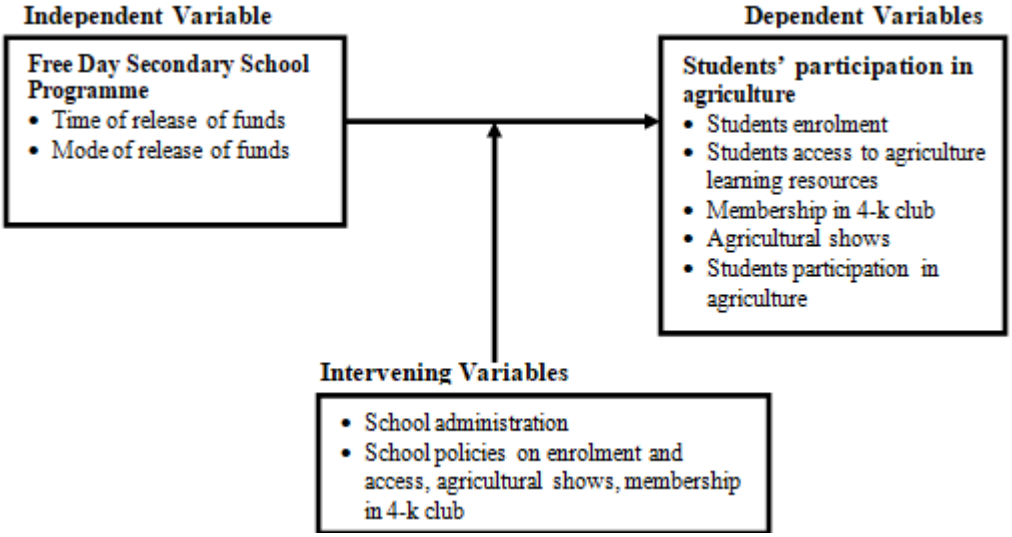


Figure 1: Conceptual Framework showing the interaction between Free Day Secondary School Programme and student participation in agriculture in secondary school

According to Orodho (2009), a conceptual framework is a model of presentation where a researcher conceptualizes or represents the relationships between variables in the study and shows the relationship graphically or diagrammatically. The figure 1.1 above shows the interaction between the Kenya Government policy on SSE for the provision of educational resources and the outcomes as a result of these educational resources.

From the figure above, it was noted that student access and enrolment rates in agriculture classes in public secondary schools were directly dependent on the FDSSP, yet other factors played an integral role in the whole system of education. Such factors include: Existing educational resources, school administration, parents and the community.

3. Research Methodology

3.1 Introduction

This chapter provided a logical description of how the study was be done. It was designed to facilitate the achievement of the objectives of the study. The chapter discussed the methodology that was used in the study. It included: research design, location of the study, Target population, sampling procedure and sample size, instrumentation,

validity and reliability of the research instruments, data collection and analysis procedures.

3.2 Research Design

The study used Cross sectional survey design. Cross sectional survey, research aimed at determining the status quo of a situation (Kathuri, 1993). Surveys are excellent vehicles for collecting original data for studying a large population. (Gay, 1976) notes that survey research method were used to investigate educational problems and to determine and report the way things were. The researcher preferred that design since the study used questionnaires whose items seeked information regarding some salient factors involved in participation in agriculture in secondary schools. The surveys were cost effective, efficient when population is large; take shorter time than case studies and experimental studies; their analysis was exploratory enabling the researcher to make references. The researcher used a Cross sectional survey design for the study. The design was most appropriate in this study as it provided a systematic representative and reliable information. It was very suitable because views were collected from a group of people. The study adopted the Cross sectional survey research design to explore the various effects of the free day Secondary school programme in Mbita sub-county.

3.3 Location of the Study

The study was conducted in Mbita Sub-County which covers an area of 163.28km^2 with a population of 54,014. (KDHS, 2013). It borders the following other divisions; Rusinga, Mfangano and Lambwe divisions This was one of the sub-counties in Homa Bay County, located approximately 400km west of Nairobi along the shores of Lake Victoria at coordinates $0^0$25'0'' South and $34^0$12'0'' East. It had four administrative regions, namely: Rusinga West, Rusinga East, Gembe East and Gembe West; and three major islands – Takawiri, Kibuogi and Mfang'ano. Educationally, the sub-county has 82 public and 21 private secondary schools with an estimated population of 6,500 students. The main agricultural activities in this area were farming of vegetables, maize, millet, sorghum and other staple foods. Local livestock and few exotic livestock breeds were also available. However, fishing had taken a center stage as an economic activity. The Division is relatively new and experiencing a lot of challenges in implementing government policies on improving academic performance. The researcher chose the location because no similar study, to the best knowledge of the researcher, had been conducted in the same sub-county.

3.4 Target population

Target population was the population for which the findings of the study was generalized for. The target population for this study were the 4 Quality Assurance and standards officers (QUASO) from the 4 administrative units in Mbita sub-county, 51 principals and 51 teachers of agriculture Sampled from public secondary schools in Mbita sub-county that had been in existence prior to the year 2008 when Free Day Secondary Schools Programme started. The period was found appropriate for determining the population of study for comparison purposes for before and after the onset of Free Day Secondary Schools Programme. Borg and Gall (1998) defined population as all members of a real set of people, events and objects to which the researcher wishes to generalize the results of the research. Thus the 51 principals and the 51 agriculture teachers and the 4 Quality Assurance and Standards Officers of the population formed the target population.

3.5 Sampling Procedure and Sample Size

The schools were first divided into three strata; boys' school, girls' school and mixed secondary schools. In consideration of the small size of the population, the researcher included the entire population in the study, which was the 4 QUASOs, 51 principals and 51 teachers of agriculture in public secondary schools. In total they were 106. All the 106 constituted the respondents for the study.

3.6 Instrumentation

The researcher used two sets of self-administered questionnaires, the questionnaire for Principals and the teachers of agriculture, and an interview schedule for the QUASOs. A questionnaire was an instrument used to collect data which allows measurement for or against a particular viewpoint (Orodho, 2009). He added that a questionnaire had the ability to collect a large amount of information in a short time. Mugenda (2003) recommended the use of questionnaires as the most commonly used instrument in social science research. They added that well organized questionnaires were advantageous as the respondents found their way around with ease and that they were easy to code. Questionnaires had been preferred for this study because they were responded to by the participants at their own time and volition; the respondents had the ability to independently respond to the items; and that they were easy to administer to a large sample within a short time (Kothari, 2004). The questionnaire were developed by the researcher. Apart from the common demographic information that was solicited by the questionnaires e.g. age gender, years of teaching experience, each set of the questionnaires had respondent-specific items as follows:

3.6.1 The Principals Questionnaire

Questionnaire was an instrument used to gather data, which allowed measurement for or against a viewpoint (Orodho, 2009). He added that a questionnaire had the ability to collect information in a quick space of time. This was intended to solicit information on the trends of enrolment and drop-out rates in agriculture subject in the sampled secondary schools and provided an overview of the availability and adequacy of resources for teaching/learning agriculture. He adds that a questionnaire has the ability to collect a large amount of information in a reasonably quick space of time. The use of questionnaires was recommended as the most commonly used instruments in social science research. Well organized questionnaires are advantageous because the respondents can find their way around with ease and that they are easy to code.

3.6.2 The Agriculture Teacher Questionnaire

This was used to collect data on teachers of agriculture's opinion on how FDSSP had impacted on the student's participation in agriculture in secondary schools.

3.6.3 Interview guide for the QUASOs

Orodho (2009) defined an interview guide as a set of questions that an interviewer asked when interviewing respondents. He added that an interview guide made it possible to obtain the data required to meet the specific objectives of the study and that they were used to standardize the interview situation so that interviewers asked the same question in the same manner. He further argued that semi- structured interviews were based on the use of an interview guide and noted that "However the exact order and wording of the questions varied from respondent to respondent. The interview guide for the QUASOs was used to find out whether all the students in the sub-county were entitled to the Free Day Secondary Schools Programme.

Analysis of documents

Analysis of documents was used by the researcher to supplement the information that was obtained from the questionnaires. It involved examining and recording the available resources in each school which included demonstration plots, plots for KCSE agriculture project, classrooms, laboratories, libraries, latrines, textbooks, laboratory equipment and general maintenance of the school buildings, among others. The observational methods of data collection are suitable for investigating phenomena that the researcher can observe directly.

3.6.4 Validity

According to Mugenda and Mugenda (2003), validity was the degree to which results obtained from the analysis of the data represented the phenomenon under study. Validity was the extent to which the instrument measured what it was designed to measure (Weirsma, 1995). Questionnaires enabled the researcher to obtain first-hand information. According to Borg and Gall (1989), content validity of an instrument was improved through expert judgment. The instruments were validated by experts drawn from the department of Agricultural Education and Extension of Egerton University. The panel ensured that items in the questionnaire adequately measured the degree to which the data collected would represent concepts that cover content and face validity (Mugenda, 2008). Their recommendations and suggestions were used to make the final draft of the instruments.

3.6.5 Reliability

Reliability measured the degree to which a research instrument yielded consistent results after repeated trials (Kothari, 2010).The internal consistency of the questionnaire was established by computing Cronbach's coefficient alpha. To be accepted for use the instrument was to have an alpha reliability coefficient of at least 0.70 at confidence level of 0.05set (Mugenda & Mugenda, 1999). The researcher tested the instruments through a pilot study with 30 principals and 30 teachers of agriculture in public secondary schools in the Rachuonyo North sub-county that were in existence prior to the year 2008. The choice of Rachuonyo North sub-county was that it had similar conditions and characteristics as in Mbita sub-county. Kathuri and Pals (1993) recommended the sample size for a pilot test to be 25-50 respondents. The study adopted the sample size of 30 principals and 30 teachers of agriculture in the 30 chosen schools which were along the lake shore with similar conditions to most schools in Mbita sub-county.

3.7 Data Collection Procedure

Upon approval by Egerton University, the researcher obtained a research permit from National Commission for Science, Technology and Innovation (NACOSTI), for authority to carry out research. On receiving the research permit, permission from the Ministry of Education in Homa-bay County, Mbita sub-county was sought for field research in the area. For consent from the individual participants, the researcher wrote a letter of introduction to the selected schools and thereafter made an introductory visit to arrange for data collection from principals and teachers of agriculture .On the appointed days, the researcher personally collected data from QUASOs and distributed the questionnaires in the schools and collected them for analysis after the sessions. The questionnaires were hand delivered and collected from the respondents to minimize non-response rates. Data collection took 35 days.

3.8 Data Analysis

The researcher cleaned the raw data by eliminating unclear answers and then developed a coding scheme that guided the entry into the computer for analysis (Kombo & Tromp, 2009). The synthesized data was analyzed using descriptive statistics and quantitatively with the help of Statistical Package for Social Sciences (SPSS) v.22, all the hypothesis were tested at $\alpha = 0.05$ level of significance. Tests used included t-test and chi-square. The data was coded, tallied and converted into percentages and frequencies displayed in frequency tables and interpreted in line with the objectives of the study.

Table 2: Summary of Data Analysis

Hypothesis	Independent Variable	Dependent Variable	Statistical Analysis
$H0_1$: Tuition free secondary education Programme had no effect on students' enrolment in agriculture in secondary Schools in Mbita-sub County.	Tuition free Secondary School Programme	Student enrolment in agriculture	• Frequencies and Percentages • Means • t-test
$H0_2$: Tuition free secondary schools programme had no effect on students' access to agriculture teaching and learning resources in secondary schools in Mbita Sub-County	Tuition free Secondary School Programme	Student access to agriculture teaching and learning resources.	• Frequencies and Percentages • Means • Chi-square

$H0_3$: Tuition free secondary schools programme has no effect on students' participation agriculture in secondary schools in Mbita Sub-county.	Tuition free Secondary School Programme	Student participation in agriculture.	• Frequencies and Percentages • t-test • Chi-square
$H0_4$ Tuition free secondary schools programme has no relationship with students' access to agriculture teaching learning resources and their participation in agriculture subject in secondary school in Mbita sub-county	Tuition free Secondary School Programme	Relationship between students access to agriculture teaching learning resources and their participation in agriculture subject	• Frequencies and Percentages • Means • t-test

4. Results and Discussion

4.1 Introduction

This study sought to investigate the effects of Free Day Secondary Schools Programme (FDSSP) on students' participation in agriculture subject in secondary schools in Mbita sub- county Homa -Bay County. Data was collected through questionnaires and interview schedule which were administered to the respondents using hard copies. The responses were received from 51 head teachers and 51 teachers of agriculture subject.

The related literature review on the effects of Free Day Secondary Schools Programme on students participation in agriculture in secondary schools, was studied in the world, in African countries like Mauritius, Zimbabwe, Egypt and finally in Kenya. The following discussion in Mbita Sub County informed us of any variation in effects of Free Day Secondary Schools Programme.

4.2 Profile of respondents

The findings and discussion welcomed and supported the idea of Free Day Secondary Schools Programme in Mbita sub-County. Included in the demographic characteristics was the respondents' gender composition, respondents' level of education, duration of service in the current institution and the type of school. This data was solicited to enable the researcher to get the background information on the schools in the study sample. The background information assists the researcher in generalizing the study findings to the sample population. Respondents' demographic characteristics were presented in the following figures.

Respondents' Distribution across Gender
Majority of the respondents who took part in this study were male at 37(68%) while 14(32%) were female. Thus the findings of the study gave a good representative sample of gender.

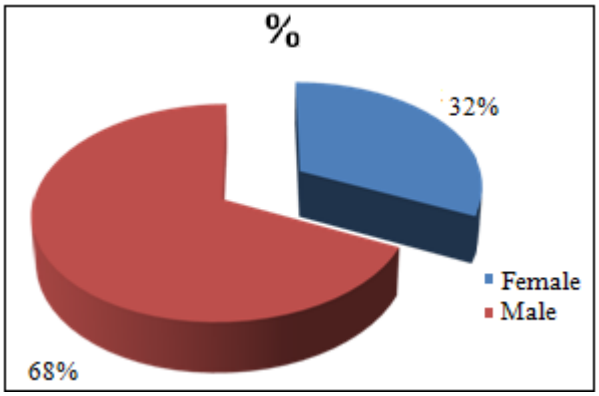


Figure 2: Respondents' Distribution across Gender

Distribution of Sampled Respondents Age
Majority of the principals respondents 31(50%) were between the age bracket of 41 years – 45 years while most teachers of agriculture 16(32%) were between 31 and 35 years. Age is associated with experience which helps one build himself/herself and thus avoids trial and error approach especially in financial management.

Table 3: Distribution of Sampled Respondents Age

Age bracket	Teachers of agriculture	Principals
Less than 25 years	4	0
26 – 30	16	0
31 – 35	16	0
36 – 40	7	6
41 – 45	5	31
46 – 50	3	9
51 – 55	0	5
56 & above	0	0

Respondents Level of Education in Sampled Schools
Majority of the principals respondents 25(50%) were holders of bachelors' degree followed by 20(43%) holders of masters' degree. Most teachers of agriculture respondents 27(58%) had bachelors' degree while 14(22%) were diploma holders.

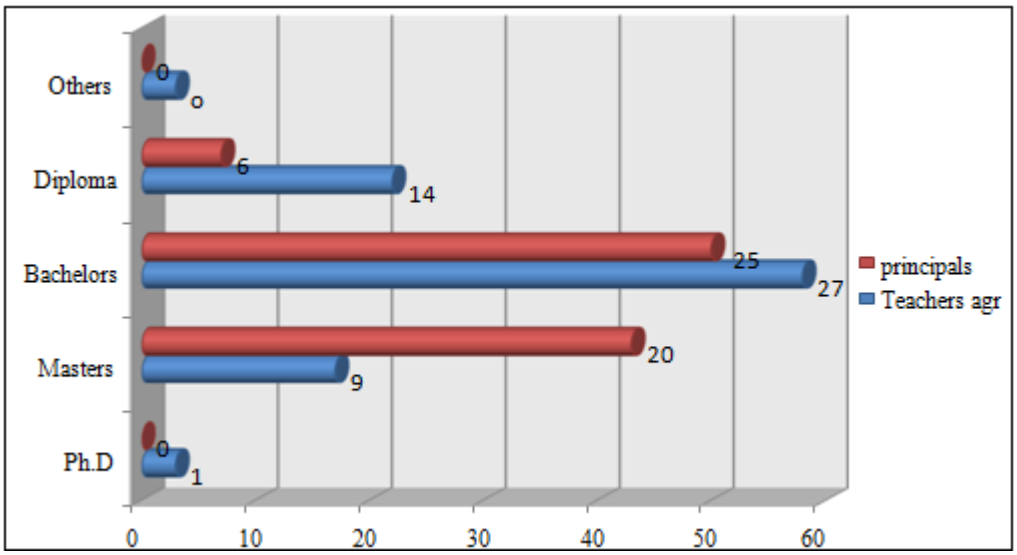


Figure 3: Respondents Level of Education in Sampled Schools

Respondents Work Experience in Sampled Schools

Majority of the teachers 36(74%) had work experience of 0 – 10 years while 9(66%) of the Principals had work experience of between 6 – 15 years. Only 5(11%) of the teachers had worked for over 21 years, none of the school head teacher had an experience of over 21 years.

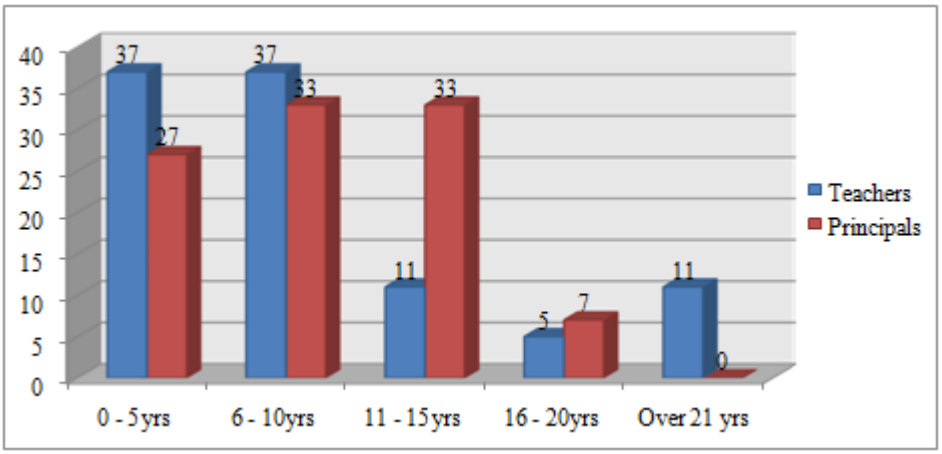


Figure 4: Respondents Work Experience in Sampled Schools

Categories of Sampled Secondary Schools

Of the schools that took part in this study, majority 25(52%) were mixed day school, followed by 11(23%) mixed boarding schools as indicated in Figure 4.4. the total number of girls and boys boarding schools in the sample were 9(15%) and 6(10%) respectively.

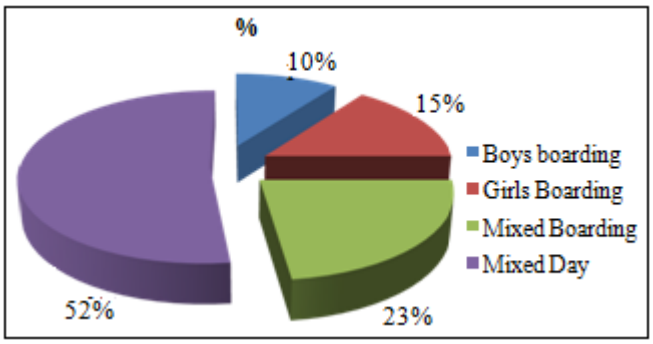


Figure 5: Categories of Sampled Secondary Schools

4.3 Analysis of Research Questions

Each research question was analyzed by summarizing the responses that relates to what it sought to answer. The summaries are presented in form of figures, tables and text.

4.3.1 Research Question one: What are the enrolment rates in agriculture subject in secondary schools in Mbita Sub County for the last five years?

The percentage increase of students has increased until some schools have recorded 117% increase. Students' enrolment in agriculture subject in secondary schools has increased due to Free Day Secondary Schools Programme in Kenya which has seen the demand for agriculture subject in secondary schools increased. The programme, which was started in 2008, has led to an increase in participation in agriculture subject in secondary schools in Mbita sub-county. Kenya's Ministry of Education notes that there has been massive improvement in secondary school enrollment in agriculture subject over the years.

Schools Enrolments in agriculture subject for the Last 5 years in sampled schools

Table 4: Schools Enrolments in agriculture subject for the Last 5 years in sampled schools

School Serial No.	2008	2009	2010	2011	2012	% increase (2008 -2012)
1	180	168	200	260	284	37
2	259	285	314	344	360	28
3	260	280	250	202	254	-2
4	174	181	185	211	231	21
5	77	128	156	198	267	107
6	94	124	186	252	321	117
7	70	82	110	128	134	37
8	235	260	268	277	279	13
9	173	184	181	194	169	-1
10	252	257	259	304	343	26
11	180	200	201	211	255	27
12	58	72	87	121	154	61
13	124	158	178	201	228	46
14	45	65	81	79	81	25

Enrolment Rates in agriculture subject in Sampled Secondary Schools

The majority of the respondents 35(68%) said that enrolment rates in agriculture subject in sampled secondary schools in Mbita sub-county was very high, while 16(32%) said the enrolments in agriculture were average. This shows that most of the secondary schools in Mbita sub-county have high enrolments of students in agriculture subject due to the Free Day Secondary Schools Programme which has led to high demand for agriculture subject in secondary schools in Mbita sub-county.

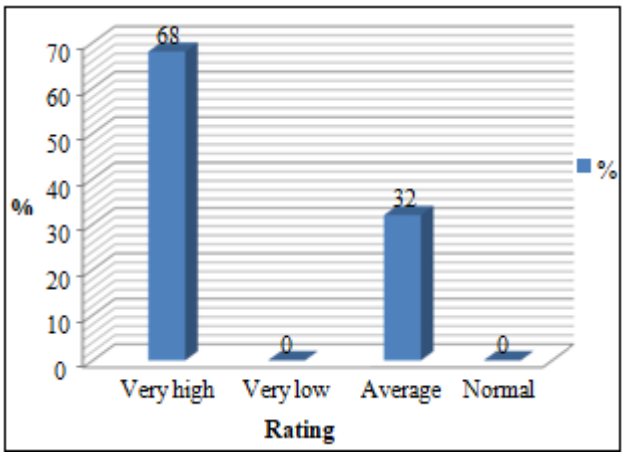


Figure 6: Enrolment Rates in agriculture subject in Sampled Secondary Schools

Enrolment of students in agriculture subject versus teachers of agriculture

Some schools though with more students taking agriculture subject than others had fewer teachers. A school with 142 had only 4 teachers while another with 133 had 4 teachers. This is an indication that the teaching staff is not well balanced and that some schools were understaffed. This is also an indication that the number of students taking agriculture subject increase as the number of teachers does not increase leading to poor delivery of content to the students in the secondary schools.

Table 5: Enrolment of students in agriculture subject versus teachers of agriculture

School Serial No.	No. of students (2018)	No. of Teachers
1	184	3
2	146	4
3	154	3
4	133	4
5	136	4
6	142	4
7	123	3
8	137	3
9	126	4
10	143	4
11	155	3
12	125	2
13	132	3
14	118	2

Ratio of Teachers of agriculture to Students in secondary schools in Mbita sub-county. On teacher – student ratio, majority of the respondents 41(66%) said it was heavy while 18(29%) said it was average. Only 3(5%) said it was adequate. This means that the student's needs and weaknesses are not attended well by their teachers due to the high number of students against the teachers meaning that the students' performance will be low.

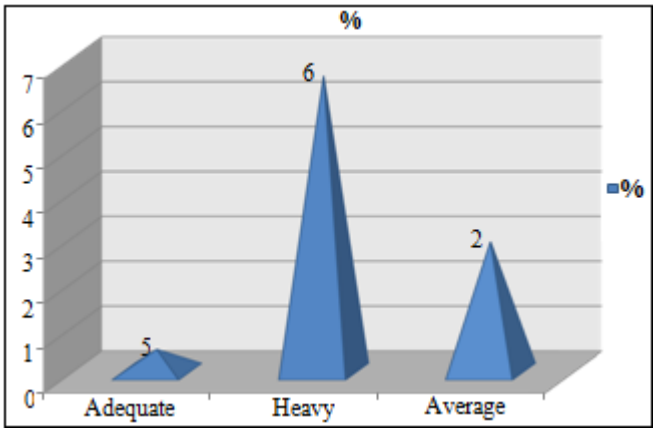


Figure 7: Ratio of Teachers of agriculture to Students in secondary schools in Mbita sub-county

Categories of Teachers of agriculture in Sampled Secondary Schools

All the respondents 51(100%) said TSC teachers of agriculture were not adequate. On BOM teachers 45(93%) said they were not adequate while 3(7%) said they were adequate. On teacher volunteers, 10(21%) said they were not adequate while 37(78%) of the respondents said the issue of volunteer teachers did not apply in their schools. This implies that if the teachers are not adequate then the delivery of content to the students is not done well because one teacher will have to attend many students.

Table 6: Categories of Teachers of agriculture in Sampled Secondary Schools

Category	Adequate	Not adequate
TSC	0	100%
BOM	3	93
Volunteers	0	21

Sampled Teachers of agriculture Workload per Week

Majority of the respondents 40(84%) indicated that teachers of agriculture's workload per week was heavy while 6(13%) said it was average. Only 1(3%) indicated that the work load was adequate. Oketch (1991) observed that human interaction between the teacher and the leaner is invaluable for motivation of learning. This means that with this high workload then the teachers will not be able to interact with their learners.

Availability of facilities for teaching/learning agriculture in sampled secondary schools in Mbita sub-county

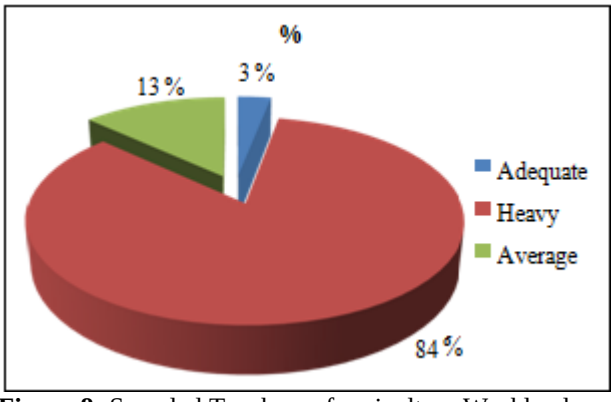


Figure 8: Sampled Teachers of agriculture Workload per Week

Assessment of facilities for teaching/learning agriculture availability in sampled secondary schools indicates that, Teachers' houses 47(76%) were not adequate. This could have been attributed to the fact that 32(52%) of the sampled schools were day as indicated in Figure 4.4. Mbugua (1997) says that one of the duties of the head teachers in Kenya is to develop the school's physical facilities. She argues that in dealing with physical facilities, a head teacher has to bear in mind where to house the educational program, the population to be served by the facility and ensure that financial resources are readily available for the school expansions.Others not adequately supplied were safety equipments like fire extinguishers, first aid kits, office furniture, co-curriculum activities resources/Games i.e. indoor games and dining hall. Though some facilities were available, some facilities like the library, laboratory and classrooms were still too small for use compared to the number of students. Other facilities like the school laboratory were incomplete with no preparation tables; no gas fillings and they lacked fume chambers.

Suggestions made on areas which needed additional facilities in case the schools needs to increase its population of students enrolling in agriculture subject ranged from building a bigger library including text books for teaching/learning agriculture and laboratory. Further suggestions were on stocking more text books and reading materials for agriculture subject in the school library and increasing the number for desks and chairs in the class rooms for agriculture as well as improving the office furniture. Water and electricity supplies needed improvement to curb water shortages and limited power supply. This could help in establishing the agriculture projects for both crops and livestock. A study carried out by Mbaabu (1983) revealed that lack of physical facilities, materials, equipment and tools, agriculture subject included were among the major problems that teaching/learning agriculture subject are faced with in secondary schools in Mbita sub-county. This study revealed that Free Day Secondary Schools Programme brought about problems related to over-enrolment, lack of physical facilities, and inadequate teachers in agriculture subject.

Table 7: Availability of facilities for teaching/learning agriculture in sampled secondary schools in Mbita sub-county

Facilities	Yes (%)	No (%)
Library	53	47
Enough classrooms	59	41
Teachers houses	24	76
School bus	46	54
Electricity supply	41	59

Sufficient Supply of Instructional Materials for Teaching/learning Agriculture

Table 4.6 shows most agriculture subject instructional materials were not adequate. These ranged from Stationary 48(84%), plots for KCSE projects 48(84%) Textbooks 46(82%), Demonstration plots 42(78%) and Farm tools and equipments 34(72%). Other schools had none of these instructional materials. From the study, only exercise books 28(62%) were adequate. This means that due to Free Day Secondary Schools Programme has led to adequacy of facilities such as textbooks, stationary, farm tools and equipments among others for teaching/learning agriculture subject, and to increased enrolment rates in agriculture subject in secondary schools in Mbita sub-county.

Instructional Materials	Adequate	Not Adequate	None
Textbooks	10	33	8

Table 8: Sufficient Supply of Instructional Materials for Teaching/learning Agriculture

Farm tools and equipments	11	23	17
Exercise Books	13	35	3
Stationary	13	25	3
Demonstration plots	8	29	14
Plots for KCSE projects	2	35	14

Agriculture Textbooks Ratio in Sampled Secondary Schools

Majority of the respondents 25(40%) revealed that the most common Agriculture textbooks ratio was 1:5 students followed by a 14(23%) each indicating that Agriculture text books ratios were 1:3 and 1:4 students, 7(11%) saying they were 1:2 and only 2(3%) indicating that the Agriculture textbooks were 1:1 students. Other respondents indicated that Agriculture textbooks were 1:10 while in some schools it was 1:20.Students' access to agriculture textbooks is an important factor in what and how much they learn. In many developing countries, the availability of Agriculture textbooks and other reading materials is severely limited. UNESCO (2007) observes that while the student Agriculture textbook ratio is a significance measure of education quality, many classrooms in developing countries especially in poor and rural areas possess only one Agriculture textbook, typically possessed by the Agriculture teacher.

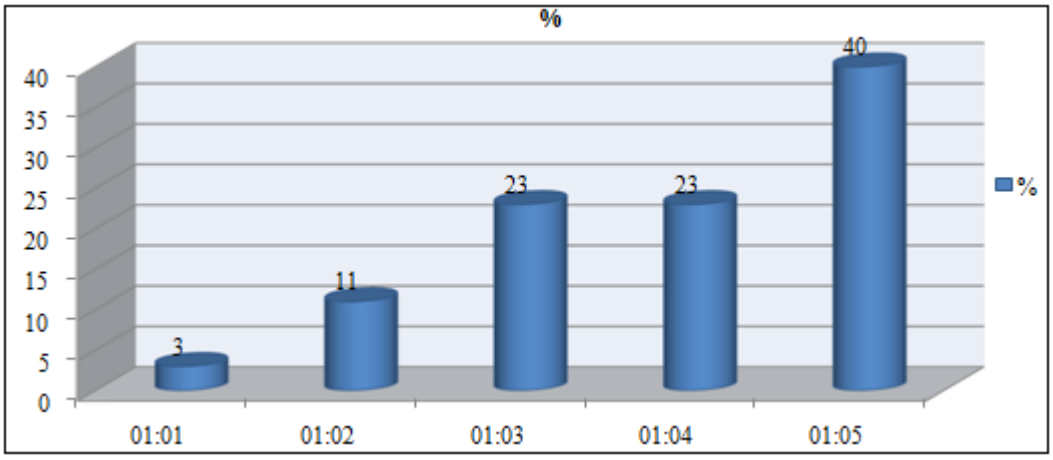


Figure 9: Agriculture Textbooks Ratio in Sampled Secondary Schools

Rating availability and status of physical facilities for teaching/learning agriculture

The availability and status of physical facilities indicates that 51(100%) of the respondents said that facilities like laboratory, library, school bus and staff houses were inadequate. Classrooms were 49(79%) adequate followed by toilets and electricity supply at 42(71%) and 40(64%) respectively. Njeru and Orodho (2003) observe that availability and adequacy of learning resources such as teaching force, physical facilities and instructional materials influence quality of education.

Table 9: Rating availability and status of physical facilities for teaching/learning agriculture

Facility	Adequate	Inadequate
Classrooms	30	21
Library	0	100
School Bus	12	39
Electricity Supply	15	36

Rating agriculture subject instructional materials in sampled secondary schools

Instructional materials for teaching/learning agriculture in the sampled secondary schools in Mbita sub-county and majority of the respondents 51(100%) indicated that laboratory apparatus were inadequate followed by 47(92%) each indicating that stationary, laboratory chemicals and text books were also inadequate. Exercise books were 47(92%) adequate followed by desks and chairs which were 37(75%). Government of Kenya (2005) outlines some of the policies adopted by the Kenyan Government in order to reduce the burden on parents agriculture subject included. These included integrating Secondary school education as part of basic education, promoting development of day secondary schools to expand access and reduce costs to parents and providing targeted instructional materials agriculture subject included to needy public secondary schools while encouraging parents to provide infrastructure and operational costs.

According to principals some of the main constraints that they encounter in relation to the implementation of the Free Day Secondary Schools Programme were delayed disbursement of funds by the Ministry of Education. Sometimes schools receive these funds late when schools are in session. Most parents do not want to pay anything as they argue that secondary school education is free. This poses a challenge to the schools administration as they try to collect other funds such as lunch fee in case of day schools, boarding fee in boarding schools, activity and building funds. Asayo (2009) urges the government to explain to the parents how Free Day Secondary Schools Programme is. Parents expect a lot from this program in terms of quality education, which means adequate supply of learning resources like more teachers, physical facilities and instructional materials. Free Day Secondary Schools Programme in Kenya has led to increase in students seeking secondary school education. According to class teachers some of the main constraints that they encounter in relation to the implementation of the Free Day Secondary Schools Programme were lack of infrastructural facilities at school/stretched physical resources for teaching/learning agriculture subject, lack of enough instructional resources, large populations in agriculture subject which translated to high workloads as admissions were too high against the available agriculture teachers. Because of the overcrowded agriculture classes individual attention of students was not taken care of due to high enrolments. They raised other issues like inadequate funds, mismanagement of available fund, embezzlements of funds by school managers. Most school lack tendering committees hence lacked transparency in expenditures. Lack of proper planning on how to spent school funds was another constraint and times government funds are diverted to other purposes like paying supplies for food stuff supplied to schools. Some schools had uncooperative parents who thought that government pays all funds needed in running schools. Others thought that the subsidy made education a free program hence being reluctant to pay other school levies. Students from challenged families (orphans, physical and poverty) cannot access the education because they cannot afford to buy uniform and pay lunch.

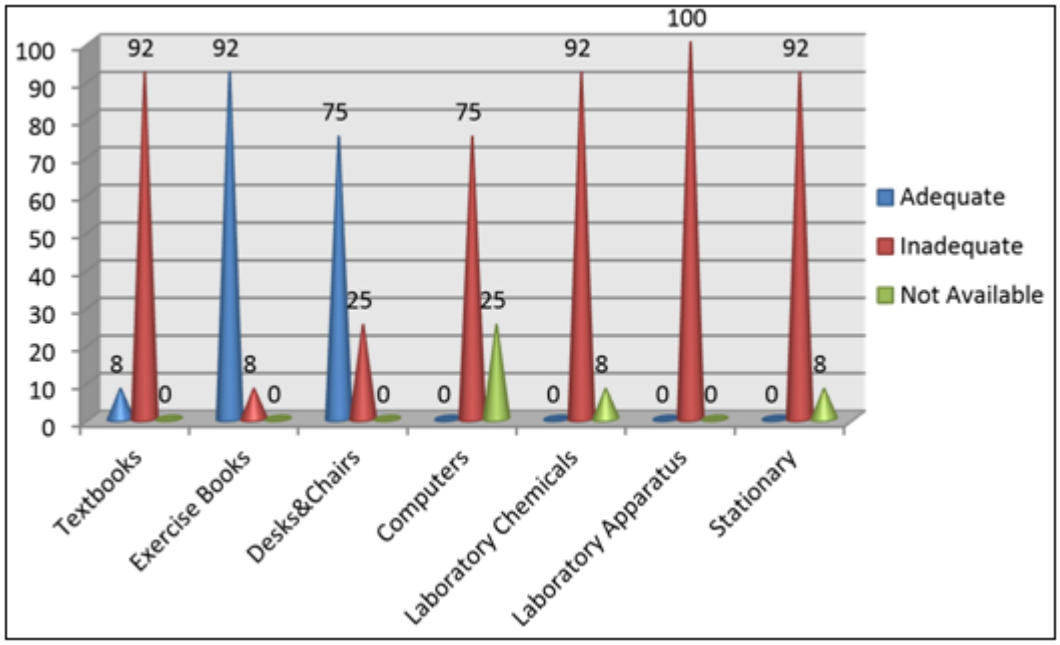


Figure 10: Rating agriculture subject instructional materials in sampled secondary schools

Adequacies of Teachers of agriculture in Sampled Secondary Schools

Majority of the respondents 49(97%) agreed that teachers were adequate in the sampled schools while 2(3%) said they were not adequate.

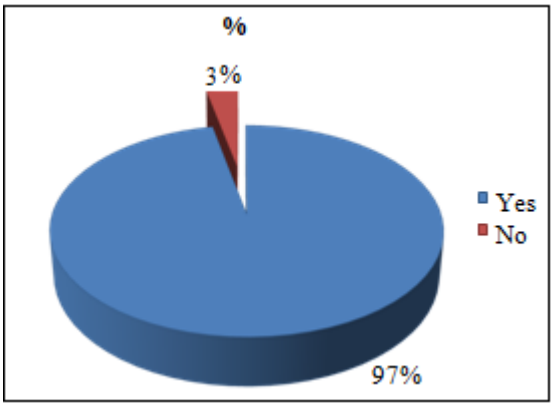


Figure: 4.11: Adequacies of Teachers of agriculture in Sampled Secondary Schools

Sources of Finance in Sampled Secondary Schools

On ranking sources of funds in the sampled secondary schools, top in the list were funds collected through fees paid by students, followed by bursary given to students, CDF funds for school development, NGO's, Churches, well-wishers an finally projects. This means that the schools greatly depends on the fees paid by the parents meaning that still the Free Day Secondary Schools Programme funds is not enough to run the schools hence the poor students are not able to access agriculture subject in secondary schools adequately.

Table 10: Sources of Finance in Sampled Secondary Schools

Category	Ranking
Fees	1
Bursary	2
CDF	3
NGO's	4
Churches	5
Well wishers	6
Projects	7

Support Free Day Secondary Schools Programme

The majority of the principals respondents 46(93%) and teachers of agriculture 33(68%) supported Free Day Secondary Schools Programme while 15(32%) and 3(7%) of teachers of agriculture and principals respectively did not support Free Day Secondary Schools Programme. Reasons for supporting Free Day Secondary Schools Programme were increased enrolments of students in agriculture subject which have enabled poor parents educate their children. Many children of school going age are able to access agriculture subject in secondary schools.

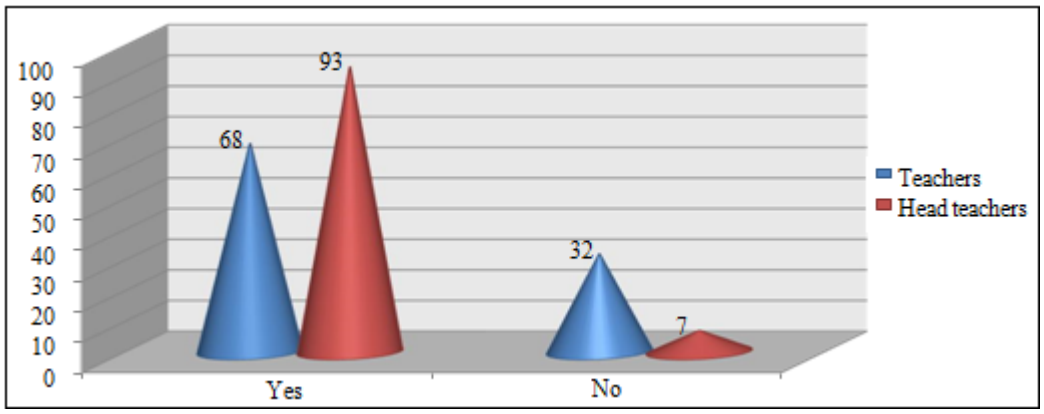


Figure 12: Support Free Day Secondary Schools Programme

Administrative Responses

Table 4.9 indicates administrative responses to additional teachers, additional teaching and reading materials and additional agriculture subject plots. 40(71%) head teachers and 28(58%) teachers of agriculture indicated that response to additional teachers of agriculture was not good. 42(86%) of the head teachers indicated that response to additional teaching and learning agriculture subject materials was very slow.

Table: 11: Administrative Responses

Category	Good		Very Slow		Not Good	
	Agric. teacher	Principal	Agric. teacher	Principal	Agric. Teacher	Principal
Additional agriculture teachers	0	0	42	29	48	41
Additional teaching & learning materials	0	7	49	46	31	7
Additional agric plots	6	29	43	50	31	21

4.4 Suggested solutions to the problems of Free Day Secondary Schools Programme in relation to access on the agriculture subject teaching and learning resources in Mbita sub county secondary schools

Respondents gave some solutions to these problems. They said thatthe government needed to disburse funds in good time. They called on the government to increase the allocation of the funds per student as the funds allocated were not enough. It should also source for more funds from well-wishers and donors. Some school principals felt that parents needed to pay more school fees if schools were to realize their objectives. To avoid burdening schools with wage payment for BOM teachers, TSC should ensure adequate staffing for agriculture subject teachers in all schools to avoid teacher shortage. There was need to sensitize parents on Free Day Secondary Schools Programme so that they understand that secondary school is not totally free secondary school education. Sensitize parents on what Free Day Secondary Schools Programme caters for and what parents are supposed to pay as lunch fees and boarding fees/ government should take the initiative to sensitize parents that it is just but a Free Day Secondary Schools Programme and not full payment of fees. As a solution to funds scarcity in learning institutions, PTA should be more actively involved in looking for extra sources of income including funds drive for demonstration plots as well as the plots for agriculture KCSE projects expansion. Agriculture Income generating projects should be prioritized in all schools. Schools should set special provision for orphans, challenged students and poor children by giving them more money than others. Proper planning and allocation of funds for each vote head in regard to the needs was essential as class teachers called on proper audit of the same. Government should carry out students of agriculture head count because many schools have ghost students to ensure that schools receive extra funds for the number of students in agriculture classes.

4.5 Report on the Researcher's Observation Checklist

The following was the report by the researcher from the observation checklist. The number of agriculture teachers from the school's timetable was averagely fifteen teachers comprising of the Board of management and Teachers Service Commission Employees. All the schools had standard sizable classrooms which are permanent but most of them were crowded by the agriculture students. On the availability of farm tools and equipments only three schools of the fourteen schools had no farm tools and equipments and eleven of them had them. Two schools had no library at all while twelve schools had library at the same time only three schools had their library well stocked with books while eleven schools had not well stocked their library. Only one school had a semi-permanent latrine while thirteen schools had permanent latrines and most of them were maintained accept two schools which their latrines were poorly maintained. All the schools had permanent offices and their staffroom was also permanent but eight schools had a crowded office and staffroom while only six of them were not crowded. Only four schools had their offices and staffroom well furnished with furniture while ten of them had their offices and the staffroom not well furnished. On the side of instructional materials for agriculture subject, only four schools had adequate agriculture textbooks while ten schools had inadequate agriculture textbooks. Only one of the schools had inadequate exercise books while thirteen had adequate exercise books. Six schools had adequate agriculture farm tools and equipments while eight schools had inadequate agriculture farm tools and equipments.

Seven schools had agriculture teachers' houses while seven schools had no agriculture teachers' houses but the houses

were not adequate to host all the available agriculture teachers. It is only one school that its compound was not fenced of the fourteen schools. Eight schools had their compound well maintained while six schools had their compound not maintained. In terms of the general maintenance of the buildings, most of the schools had fairly maintained buildings.

5. Summary of the Findings, Conclusions and Recommendations

5.1 Introduction

In this chapter, the results of the study were discussed and recommendations made.

5.2 Summary of the Findings

The purpose of this study was to determine the effects of Free Day Secondary Schools Programme on student's participation in agriculture subject in Mbita sub county, Homa-bay County. Research done by others had shown that there was increase in enrollment in primary schools in Kenya since the introduction of free primary education (Gatheru, 2008). It is for this reason that it was assumed that there is an increase in students enrolled in agriculture subject at secondary schools in Kenya. The increase in student population in agriculture in secondary schools without corresponding expansion of school resources for teaching and learning agriculture would result in the available resources being insufficient. This research was done to determine the availability of sufficient teaching and learning resources for agriculture in secondary schools in Mbita Sub County. The research objectives were; to determine the effects of Free Day Secondary Schools Programme on students' enrolment in agriculture in secondary school in Mbita Sub County, and to investigate the effects of Free Day Secondary Schools Programme on access to the agriculture instructional materials in secondary schools in Mbita Sub County.

The findings of the analyzed indicated that school's enrolment in agriculture subject in these sampled secondary schools in Mbita sub county, Homa Bay County over a period of five years has increased. This is due to Free Day Secondary Schools Programme in Kenya which has seen the demand for agriculture subject in secondary schools increase. The program, which was started in 2008, to increase access to agriculture instructional materials in secondary schools, particularly to the poor students, has led to an increase in students enrolling for agriculture subject in secondary schools in the country. Kenya's Ministry of Education notes that there has been massive improvement in secondary school enrollment in agriculture subject over the years.

On agriculture teacher – student ratio, majority of the respondents 41(66%) said it was heavy while 18(29%) said it was average. Only 3(5%) said it adequate. All the respondents 51(100%) said TSC teachers of agriculture were not adequate. Majority of the respondents 40(84%) indicated that agriculture teachers' workload per week was heavy while 6(13%) said it was average. Assessment of facilities for teaching and learning agriculture availability in sampled schools indicates that they were inadequate. Agriculture teachers' houses 47(76%) were not adequate. This could have been attributed to the fact that 32(52%) of the sampled schools were day schools.

Instructional materials for teaching and learning agriculture subject were not adequate. These ranged from stationary 42(84%), agriculture farm tools and equipments 42(84%) agriculture textbooks 41(82%), agriculture subject plots 38(78%) and library 35(72%). Other schools had none of these agriculture instructional materials. From the study, only exercise books 28(62%) were adequate. Agriculture textbooks ratio in sampled schools were analyzed and the results indicated that majority of the respondents 15(40%) revealed that the most common agriculture textbooks ratio was 1:5 students followed by a 9(23%) each indicating that agriculture text books ratios were 1:3 and 1:4 students. Other respondents indicated that agriculture textbooks were 1:10 while in some schools it was 1:20.

5.2Conclusions

The following conclusions were drawn from these findings; Free Day Secondary Schools Programme has enabled more Kenyan children to access agriculture subject in secondary schools in Mbita Sub County. The average number of agriculture students per class has been increasing over the years. The results show that there has been an increase in the total number of agriculture students per school from 224 to 328, an increase of 104 agriculture students. However the available teaching and learning agriculture subject resources cannot carter for the high number of agriculture students in secondary schools in Mbita Sub County.

5.3 Recommendations

From the questionnaires and observations made by the researcher, the following are the recommendations made; Measures should be put in place to ensure school resources for teaching/learning agriculture are used well. The ministry of education should disburse Free Day Secondary Schools Programme funds early enough to avoid financial crisis when schools are in session. The government should allocate more funds to schools to enable them expand their facilities for teaching and learning agriculture subject to accommodate the high number of students seeking agriculture subject in secondary schools. The government should employ more teachers of agriculture to reduce the workload and ease the burden on parents paying for B.O.M agriculture teachers. The school administration should find other ways of getting funds like projects that will bring money to help them employ BOM agriculture teachers to help the TSC agriculture teachers in terms of the heavy workload they are burdened with in delivering to the students. Parents should also find ways of increasing income so as to support the school administration to run the school smoothly as the enrolment of agriculture students is high like buying agriculture text books for their children.

5.4 Suggestions for Further Research

Based on my findings and gaps that I was not able to fill because of limitation of time, financial constraints and geographical vastness of the sub-county, the following are suggested for further research.

5.4.1 A major study could be done on assessing potential income generating activities to all public learning institutions all over the country.

5.4.2 Study can be done in analyzing strategies to reduce costs of agriculture subject in secondary schools.

5.4.3 A study to determine the effects of Free Day Secondary Schools Programme on dropout rate in secondary schools.

6. Declaration

Author hereby declare that this M.Sc. thesis is his original work and has not been presented elsewhere for an award of a degree, diploma or certificate in this or any other university.

7. Recommendation

This thesis has been submitted to the Board of Post Graduate Studies for examination with our approval as the University Supervisors.

8. Dedication

I dedicate this work to my beloved wife Priscah Achieng, my children Byron, Audrey, Phanice, Candy and my parents Philemon Odero and Susan Adoyo whose encouragement and support continue to amaze me.

9. Acknowledgement

My gratitude goes to all people and institutions that individually or collectively contributed to the successful completion of this study. First and foremost I wish to thank my University Supervisors, Dr.James Obara and Dr. Stephen Maina for their kindness, patience and understanding. I am most indebted to them for their encouragement, technical input, and timeliness in correcting my scripts, mentoring and guiding me throughout the research process. I acknowledge the Department of Agricultural Education and Extension, Faculty of Education and Community Studies, Egerton University for scheduling my defenses, valuable criticism from the examiners and my colleagues, who inspired me to soldier on. I thank my employer, the Teachers Service Commission for granting me a two-year study leave, which gave me ample time to concentrate on my studies.I also acknowledge the support accorded me by the Mbita sub-county quality assurance and standards officer, Mr. Ragot; Principals from the sampled secondary schools in Mbita sub-county and to Agriculture teachers from the sampled schools, thank you. I am grateful to Mr. Wilson Okoth who facilitated my data collection, assisted in data interpretation and editing. Finally, my utmost appreciation goes to professor Ogweno and family who accommodated me while I was studying at Egerton University. Their academic and material support gave me encouragement and great morale to work hard. I indeed appreciate my colleagues Mr. Mbori peter , Mr. Joshua Onyango and Mr. George Salala in the Master of Science in agricultural education class of august 2013, Egerton University, who were there for me wherever I needed help and especially on technical advice. I thank them from the bottom of my heart. Lastly, I am very thankful to friends, colleagues in Oriwo boys' high school and my entire family members, for their encouragement, support and prayers. To all those who helped me in one way or the other in this research: may the Good Lord bless you abundantly. I am, however, fully responsible for the facts presented in this thesis including any unforeseen omissions and errors.

References

[1] Asayo, O. (2009). *Immediate Assessment of the Introduction of Free Secondary Education in Kenya: Emerging Issues.* Oxford: Centre for international Education, University of Sussex. Available: http://www.create-rpc.org.
[2] Bell, L. & Rhodes, C. (1996). *The skills of Primary School management*, London: Routledge.
[3] Borg, W.R (1998). *Applying Educational Research: A practical guide for Teachers.* New York: Longman.
[4] Bregman, J. & Stallmeister, S. (2012*). Secondary Education in Africa: Strategies for Renewal.* Region Human Development Working Paper Series. Washington, DC: World Bank.
[5] Colelough, C. & Lewin, K. (1993). *Educating all the Children: Strategies for Primary Schooling in the South*. New York: Oxford University Press.
[6] Di Gropello, E. (2006). *Meeting the Challenges of Secondary Education in Latin America and East Asia: Improving Efficiency and Resource Mobilization.* Washington D.C.
[7] Edward, B. C. (2010). *Challenges facing Effective Implementation of Free Secondary Education in Public Secondary Schools in Kangundo District, Kenya* (Unpublished Master's thesis) Chuka University College, Kenya.
[8] Gatheru, K. (2008). *Challenges Facing Headteachers in the Implementation of Free Primary Education:A Case of Narok District. Kenya*: Unpublished Med Project Report, Nairobi: Kenyatta University.
[9] Government of Kenya, (2005). *Sessional Paper No.1 2005: A Policy Framework for Educational Training and Research.* Nairobi: Government Printer.
[10] Gueye, A. & A. Gauci. (2003). *Pro-poor Growth Strategies in Africa: Pro-poor Education Policies and Labour Demand. Expert Group Meeting,* Munyonyo Speke Resort, Kampala, Uganda, 23 – 24 June2003.
[11] Gay, L.R (2002) *Educational Research*: *Competencies for Analysis and Application* (4th Ed.); Columbus Merrill.
[12] Harington, S, (2011). *Australian Funding for Government Schools Explained.* Sidney. Commonwealth of Australia.
[13] Hunt, F. (2008) *Dropping Out from School: A Cross Country Review of Literature*. Pathways to Access

Research Monograph, no. 16. Brighton: University of Sussex.
[14] Kathuri, J. (1993). *Introduction to Educational Research*. Educational Media Centre (EMC), Egerton University, Njoro; Kenya.
[15] Kiptoo, K. (2012). *Beyond School Inputs and Resources: An Assessment of the Effects of Subsidies on Educational Outputs in Kenya. (*Unpublished Ph.D. Thesis), Moi University, Kenya.
[16] Kivuva, L (2002*).Secondary Education Reform in Kenya: The Quest for Quality, Relevance and Equity Case Studies in Secondary Education Reform.* Acedo, Clementia (Ed.) Washington, D.C.
[17] Koech, D, (1999); *Report of the Commission of Inquiry into the Education System in Kenya: Totally Integrated Quality Education and Training*. Nairobi: Government Printers.
[18] Kombo, D. K. & Tromp, L.A. (2006). *Proposal and Thesis Writing: An Introduction*. Nairobi: Paulines Publications Africa.
[19] Kothari, C. R. (2004). *Research Methodology: Methods and Techniques*. Washwa, India: Prackashen
[20] Lewin .K, M. (2008). *Strategies for Sustainable Financing of Secondary Education in Sub-Saharan Africa*. Africa Human Development Series. Working Paper No 136. World Bank, Washington, D.C
[21] Lewin, K, & F. Cailloids. (2011). Financing Secondary Education in Developing Countries*:* Strategies for Sustainable Growth. Paris, France: International Institute for Educational Planning/ UNESCO.
[22] Lloyd, C. B. & Gage-Brandon, A. J. (2012). *Does sibsize matter? The Implications of Family size For Children's Education in Ghana*. Research Division Working Papers, No.45. New York: The Population Council.
[23] Mbiti, D. M. (2007). *Foundations of School Administration.* Nairobi: Oxford University Press.
[24] Mensch, B.S. and Lloyd, C.B. (1998) Gender Differences in the Schooling Experiences of
[25] Adolescents in Low-income Countries: The Case of Kenya. *Studies in FamilyPlanning* 29 (2). 167-184.
[26] Miller, G.T. (1998). *Living in the environment: principles, connections and solutions.* Wadsworth publishing company, Boston.
[27] Mingat, A. & Tan, J. P. (2006). Financing Public Higher Education in Developing Countries: The potential role of loan schemes. In M. Blaug (Ed.). *The Economic Value of Education: Studies in the Economics of Education*. Brookfield, Vermont: Edward Elgar Publishing Company (pp. 440 –450).
[28] Ministry of Education, Science and Technology (MoEST) (2003). *Education in Kenya: Challenges and Policy Responses.* MoE, Nairobi. Teachers Image vol. 14, 2007.
[29] Ministry of Education, Science and Technology (MoEST) (2005) *sessional paper no.1 of 2005: A Policy Framework for Education, Training and Research*. Nairobi: Government Printer.
[30] Ministry of Education, Science and Technology (MoEST) (2007). *Secondary Education Strategy (2007-2010).* Nairobi:
[31] Mokua, A. R. (2013). *Effects of Subsidized Secondary Education on Success to Public Secondary Schools in Nyamache Division, Kisii County, Kenya*. (Unpublished M.Ed. Thesis), Kenyatta University, Kenya.
[32] Mugenda, O and Mugenda, a (1999). *Research Methods. Qualitative and Quantitative Approaches. Nairobi:* Acts Press.
[33] Muganda, R. (2009). Student Dropout Rate on the Increase despite Free Education. Retrieved from http://ipsnews.net/news.asp?idnews=54004
[34] Mulkeen, A, D, Chapman, J. DeJaeghere, E. Leu, & K. Bryner. (2005). *Recruiting, Retaining, and Retraining Secondary School Teachers and Principals in Sub-Saharan Africa.*
[35] GEC Working Paper Series. Washington D.C.: Academy for Education Development and the World Bank.
[36] Njeru, E.H.N, and Orodho, J. A. (2003). *Access and Partcipation in Secondary Education in Kenya.* Nairobi: IPAR.
[37] Nsumba-Lyazi. (2010). Free Secondary School for Uganda. Retrieved from http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/EXTAFRREGTOPEDUCATION/0:21678070~menuPK: 4762583~pagePK: 34004173~piPK: 34003707~theSitePK: 444708, 00.html.
[38] Olembo, J. O. (1992). "*Major Functions of School Supervision in Kenya Schools*". A paper presented in Education Forum, Kenyatta University, Kenya.
[39] Ongeri, S. (2008). *Minister for Education, Releases KCSE Examination Results of the Year 2007.* Retrieved from http://www.communication.go.ke/media.asp?id=529
[40] Ongeri, S. (2011). *Minister for Education Release KCSE Examination Results of the year (2010*). Retrieved from http://www.theonlinekenyan.com/2011/03/kcse-results-2010.html
[41] Orodho, J.A (2009). *Elements of Education and Social Sciences, Research Methods* (2nd Ed); Maseno: Kenezja Publishers.
[42] Owens, G.R. (1998). *Organizational Behavior in Education*. Allyn and Bacon, Boston, U.S.A
[43] Saitoti, G. (2006). *Release of the Year 2005 KCSE Examination Results*. Retrieved from http://www.communication.go.ke/media.asp?id=175
[44] Saitoti, G. (2007). *KCSE 2006 Results Overview.* Retrieved from http://www.edukenya.com/articles/kcse2007_results.php
[45] Schwartz, W. (2010). "*School dropout: new information about an old problem." National Center for Education Statistics. (1995).* Retrieved from http://eric web.tc.columbia.edu/digests/dig109.html
[46] Siringi, S. (2009). *Exam Scores Poor, Even with Subject cuts*. Retrieved from http://www.nation.co.ke/News/-/1056/542008/-/u32t4n/-/index.html
[47] UNESCO, (2007). *Education for all by 2015. Will We Make it?* Oxford University Press: Oxford.

[48] UNESCO, (2008). *2009EFA Global Monitoring Report. Overcoming Inequality: why Governance Matter.* Paris:
[49] Volan, S. (2003): *Educational Reforms and Change in the South*. (Doctoral Thesis), University of Southampton
[50] Weirsma, W. (1995). *Research Methods in Education*. An Introduction; London: Allyn.
[51] World Bank (1995). *Devon Practice Primary Education in India.* Washington D.C: World Bank
[52] World Bank. (2002) *Expanding Opportunities and Building Competencies for Young People: A New Agenda for Secondary Education*. Washington DC: World Bank.
[53] World Bank. (2008) *Transitions in Secondary Education in Sub-Saharan Africa: Equity and Efficiency Issues*. World Bank Working Paper 125, Washington DC: World Bank.

Appendices

Appendix A
Interview guide for quality assuarance and standards officers
Instructions
You were identified and selected as one of the respondents to provide information required for this study on the above mentioned topic. Your responses will be treated with utmost confidentiality and anonymity. The findings of this study will be used to meet the requirements for an M.Sc. course.

1) How is the staff establishment (teachers of agriculture) in Mbita sub-county?
2) What are some of the effects of Tuition Free Secondary Schools Programme on student's access to agriculture subject since it was implemented in your sub - county?
3) Are the funds for Tuition Free Secondary Schools Programme released to schools in good time?
4) Suggest possible solution to constraints in relation to the time of release of funds for Tuition Free Secondary Schools Programme.
5) What is the enrolment trend in agriculture subject in secondary schools since the introduction of the Tuition Free Secondary Schools Programme in Kenya?
6) Comment on the enrolment trend of girls in agriculture classes since the introduction of the Tuition Free Secondary Schools Programme in Kenya?
7) Comment on the enrolment trend of boys in agriculture classes since the introduction of the Tuition Free Secondary Schools Programme in Kenya?
8) Do you think that the said trends are due to the implementation of the said programme? Kindly explain.
9) What is the access rate in agriculture subject by students since the introduction of the Tuition Free Secondary Schools Programme in Kenya?
10) Comment on the access by girls in agriculture subject in secondary schools in this area since the introduction of the Tuition Free Secondary Schools Programme in Kenya?
11) Comment on the participation of boys in agriculture subject in secondary schools since the introduction of the Tuition Free Secondary Schools Programme in Kenya?
12) Do you think that the said trends are due to the implementation of the said programme?

Appendix B
Principal's Questionaire

Introduction
I am George Nyakumba Odero taking Master of Science degree in agriculture education at Egerton University. The purpose of this questionnaire is to assist me collect data from principals in schools offering agriculture subject in Mbita Sub County for the purpose of study.

Instructions
You were identified and selected as one of the respondents to provide information required for this study concerning subsidized secondary education. Your responses will be treated with utmost confidentiality and anonymity. To ensure the same you are not required to write your name. The findings of this study will be used to meet the requirements for a M.Sc. course. Answer the questions by filling in the Blank spaces or by ticking (√) where necessary.

1) Please indicate your gender in the spaces provided below:
Male ☐ Female ☐

2) Please indicate your age bracket
Less than 25 years ☐ 26-30 years ☐ 31-35 years ☐ 36-40 year ☐
41-45 years ☐ 46-50 years ☐ 51-55 years ☐ 56 and above years ☐

3) Level of Education
Diploma ☐ Bachelor's Degree ☐ Master's degree ☐ Other (Specify) ☐

4) Period served as principal in the school

Category	Tick
Less than 1 year	
1 – 5	
6 – 10 years	
11 – 15 years	
16 – 20 years	
Over 21 years	

5) Type of School

Boys Boarding ☐ Boys Day ☐ Girls Boarding ☐
Girls Day ☐ Mixed Boarding ☐ Mixed Day ☐
Other (specify) ……

6) What are the enrolment rates in agriculture for the last five years?

a) What has been the enrolment of students in agriculture in your school for the last five years?

Class	2008		2009		2010		2011		2012	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Form 1										
Form 2										
Form 3										
Form 4										
Total										

7) What are theEffects of Tuition Free Secondary Schools Programme (TFSSP) on access to the agriculture teaching and learning resources?

8) What is the time of release of funds for Tuition Free Secondary Schools Programme?

Early ☐ Late ☐

9) What are the effects of your answer above on students' participation in agriculture in secondary schools?

10) What is the mode of release of funds for Tuition Free Secondary Schools Programme?

11) What are the effects of mode of release of funds on students' participation in agriculture?

12)Please tick the categories of teachers of agriculture that you have

Category	No. of teachers	Lessons per week
TSC		
BOM		
Volunteers		

What is the agriculture teacher's workload per week? (Tick)

Category	Lessons per week	No. of students
Agriculture teacher		

13)List down the main constraints that you encounter in relation to the implementation of the TFSSP in relation to agriculture teaching?

14) Kindly rate the availability of the following physical facilities for teaching agriculture. (Tick)

Facility	Adequate	Inadequate
Classrooms		
Library		
School bus		
Electricity supply		
Staff houses		

Kindly rate the following agriculture instructional materials. (Tick)

Material	Adequate	Inadequate	Not available
Text books			
Exercise books			
Demonstration plots			
Plots for KCSE project			
Laboratory apparatus			
Stationary			

15) What are the sources of finance for running your school?

	Category	Indicate using 1 – 7 from main source to less source
1	Fees	
2	Projects	
3	Bursary	
4	CDF	
5	NGOs	
6	Churches	
7	Well wishers	

16) What is the response in terms of requesting the following from the Ministry of Education?

Category	Good	Very slow	Not good
Additional agriculture Teachers			
Additional teaching and learning materials			
Additional Classrooms			

Appendix C:
Agriculture Teacher Questionnaire

Introduction
I am George Nyakumba Odero taking Master of Science degree in agriculture education at Egerton University. The purpose of this questionnaire is to assist me collect data from agriculture teachers in schools offering agriculture subject in Mbita Sub County for the purpose of study.

Instructions
You have been selected among the teachers of agriculture of sampled schools to assist in providing information on the Influence of TFSSP on students' enrolment and participation rates in Agriculture in secondary schools in Mbita sub-county, by filling up this Questionnaire. Any information provided will be treated with utmost confidentiality.

Name of the school…….. Date…….

Part A: General information: Personal Details of the Respondent
1) Gender: Male ( ) Female ( )
2) Age: Bellow 30 yrs. ( ) 31-40 yrs. ( ) 41 – 50 yrs. ( ) Above 50 yrs. ( )
3) Education Level: Diploma ( ) Degree ( ) Masters ( )

PART B: Effects of TFSSP on Students' enrolment rates

1. Has the implementation of Tuition Free Secondary School Programme had influence on the enrolment of learners in agriculture in your class?
Yes ☐ No ☐

If yes, explain ……

2. a) In your school, what has been the participation of students enrolled in Agriculture through to Form 4? (Tick only one)
100% ☐ 75% ☐ 50% ☐ Below 50% ☐

b) What factors could be responsible for the change in participation rates given above?

3. Availability of education resources ( ) Lack of educational resources ☐

4. In agriculture subject, what is the current average class textbook student ratio?
1:1 ☐ 1:2 ☐ 1:5 ☐ Above 1:10 ☐

Appendix D:

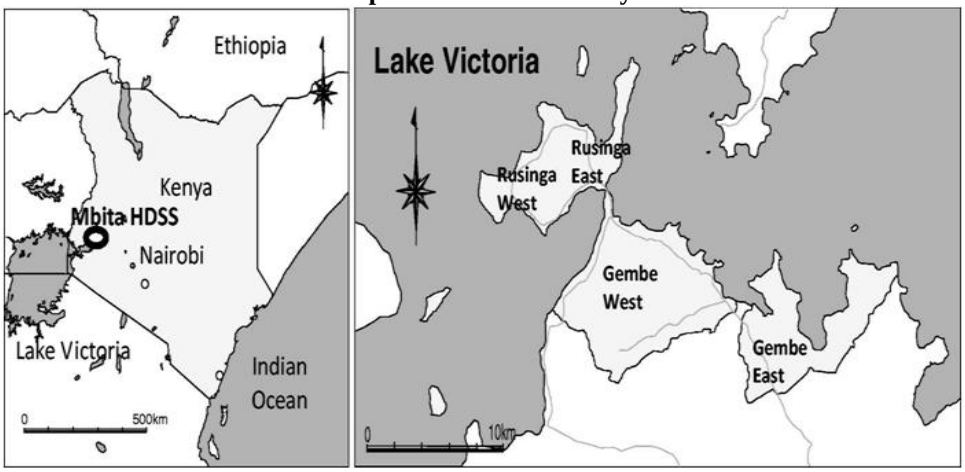
Legal Frame Work
Education and training in Kenya presently has its legal basis in the Education Act of 1968 and other related acts of parliament.

The constitution
The constitution of Kenya, (2010) provides for a number of education related provisions embodied in the Bill of rights. The constitution makes the following key provisions as regards to education: It guarantees the right to education for everyone

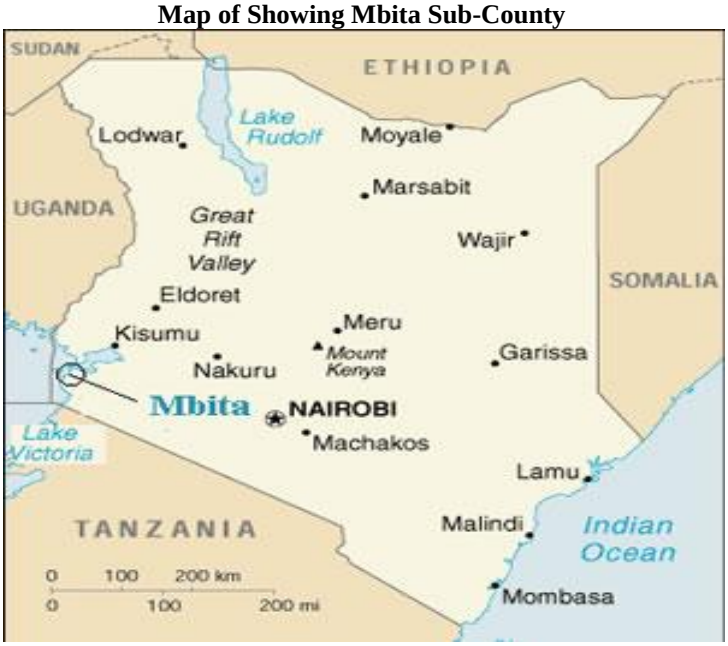
under article 43, every child has a right to free and compulsory basic education under article 53(b). Youths are entitled to government measures which include affirmative actions to ensure that they have access to relevant education and training agriculture included under article 56(b).

Kenya has ratified two regional conventions which make provision for education. These are: The African charter on human and people's rights, article 17, which provides that every individual shall have a right to education, agriculture included; and the African charter on the rights and welfare of the child, article 11 which provides provision on the right to tuition free secondary education and compulsory basic education for the child and, states obligation towards that right.

Appendix E:
Map of Mbita Sub-County



Appendix F
Map of Showing Mbita Sub-County



THIS IS TO CERTIFY THAT:
MR. GEORGE NYAKUMBA ODERO
of EGERTON UNIVERSITY, 0-40304
KANDIEGE,has been permitted to
conduct research in Homabay County

Permit No : NACOSTI/P/18/65449/24446
Date Of Issue : 24th August,2018
Fee Recieved :Ksh 1000

on the topic: EFFECTS OF FREE DAY SECONDARY SCHOOL PROGRAM ON STUDENT PARTICIPATION IN AGRICULTURE IN MBITA SUB-COUNTY KENYA

for the period ending:
23rd August,2019

Applicant's
Signature

Director General
National Commission for Science,
Technology & Innovation