

**FACTORS INFLUENCING SUSTAINABILITY OF TREE PLANTING PROGRAMMES  
IN PRIMARY SCHOOLS IN KINANGOP CONSTITUENCY NYANDARUA COUNTY,  
KENYA**

**BY**

**WANJOHI JOHN KIBOI**

**A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT OF  
THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTERS OF  
ARTS DEGREE IN PROJECT PLANNING AND MANAGEMENT OF THE  
UNIVERSITY OF NAIROBI**

**2013**

## **DECLARATION**

I declare that this research project report is my original work and has not been submitted for academic award in any University

Sign: ..... Date: .....

WANJOHI JOHN KIBOI

L50/73830/2012

This research project report has been submitted for examination with my approval as the University Supervisor

Sign: ..... Date: .....

PROFESSOR DAVID MACHARIA EBS

DEPARTMENT OF DISTANCE STUDIES

UNIVERSITY OF NAIROBI

## **DEDICATION**

I dedicate this work to my wife Jane, daughters, Lydia and Angela and son, Sammy for their prayer and moral support as I worked on the project.

## **ACKNOWLEDGEMENT**

I thank and acknowledge the Almighty God for the gift of life, good health and the strength which enabled me to complete this work. I also thank the Management of the University of Nairobi for giving me a chance to pursue a Masters course in Project Planning and Management.

I wish to also recognize the assistance accorded to me by my supervisor, Professor David Macharia for his invaluable support and input throughout the course of writing this report. I also wish to thank him for his time, energy and encouragement that enabled me to keep going. I also thank the lecturers and staff of University of Nairobi, Nyeri Extra Mural Centre for their support especially the Resident Lecturer, Dr. Lilian Otieno for her relentless advice, support and counsel throughout the course.

I also acknowledge the input of my colleagues and group members especially Mr. Eliud Waiharo for healthy discussions and input as I worked on the project. I also thank the library staff at Nyeri Library Services and University of Nairobi, Nyeri.

## TABLE OF CONTENTS

|                                                 | PAGE |
|-------------------------------------------------|------|
| <b>DECLARATION</b> .....                        | ii   |
| <b>DEDICATION</b> .....                         | iii  |
| <b>ACKNOWLEDGEMENT</b> .....                    | iv   |
| <b>LIST OF TABLES</b> .....                     | x    |
| <b>LIST OF FIGURES</b> .....                    | xii  |
| <b>LIST OF ABBREVIATIONS AND ACRONYMS</b> ..... | xiii |
| <b>ABSTRACT</b> .....                           | xiv  |
| <b>CHAPTER ONE: INTRODUCTION</b> .....          | 1    |
| 1.1 Background of the Study .....               | 1    |
| 1.2 Statement of the Problem.....               | 3    |
| 1.3 Purpose of the Study .....                  | 4    |
| 1.4 Objectives of the Study .....               | 4    |
| 1.5 Research Questions .....                    | 5    |
| 1.6 Significance of the Study .....             | 5    |
| 1.7 Delimitation of the Study.....              | 6    |
| 1.8 Limitation of the Study .....               | 6    |
| 1.9 Assumptions of the Study .....              | 6    |
| 1.10 Definition of Significant Terms .....      | 7    |
| 1.11 Organization of the Study .....            | 8    |
| <b>CHAPTER TWO: LITERATURE REVIEW</b> .....     | 9    |
| 2.1 Introduction.....                           | 9    |
| 2.2 Theoretical Framework.....                  | 9    |

|                                                                                                           |           |
|-----------------------------------------------------------------------------------------------------------|-----------|
| 2.3 Sustainability of Tree Planting Programmes .....                                                      | 10        |
| 2.4 Community Participation in Sustainability of Tree Planting programmes .....                           | 11        |
| 2.5 Training of project team on Management in Sustainability of Tree Planting.....                        | 14        |
| 2.6 Influence of Financial Administration Practices in Sustainability of Tree Planting<br>programmes..... | 17        |
| 2.7 Marketing Strategies in Sustainability of Tree Planting programmes .....                              | 19        |
| 2.8 Conceptual Framework.....                                                                             | 22        |
| 2.9 Knowledge Gap .....                                                                                   | 24        |
| 2.10 Summary .....                                                                                        | 24        |
| <b>CHAPTER THREE: RESEARCH METHODOLOGY .....</b>                                                          | <b>26</b> |
| 3.1 Introduction.....                                                                                     | 26        |
| 3.2 Research Design.....                                                                                  | 26        |
| 3.3 Target Population.....                                                                                | 26        |
| 3.4 Sample Size and Sampling Procedure .....                                                              | 27        |
| 3.5 Method of Data Collection.....                                                                        | 28        |
| 3.6 Validity of Instrument.....                                                                           | 28        |
| 3.7 Reliability of the Instruments.....                                                                   | 28        |
| 3.7.1 Pilot Survey.....                                                                                   | 29        |
| 3.9 Method of Data Analysis .....                                                                         | 29        |
| 3.10 Ethical Issues .....                                                                                 | 29        |
| 3.11 Operationalization Definition of Variables.....                                                      | 30        |
| 3.12 Summary .....                                                                                        | 33        |
| <b>CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND INTERPRETATION ...</b>                                   | <b>34</b> |
| 4.1 Introduction.....                                                                                     | 34        |

|                                                                                                          |    |
|----------------------------------------------------------------------------------------------------------|----|
| 4.2 Response Rate.....                                                                                   | 34 |
| 4.3 Demographic Information of the Respondents .....                                                     | 35 |
| 4.3.1 Gender of the Respondents .....                                                                    | 35 |
| 4.3.2 Age of Respondents .....                                                                           | 35 |
| 4.3.3 Level of education.....                                                                            | 36 |
| 4.3.4 Position Held in School .....                                                                      | 37 |
| 4.4 Operational Status of Tree Planting Programmes.....                                                  | 38 |
| 4.4.1 Operational status of Tree Nursery Programmes in Schools .....                                     | 38 |
| 4.4.2 Response As To Whether the Tree Nursery Programme Is Performing Well .....                         | 39 |
| 4.4.3 Range of Seedlings Grown in the Tree Programme .....                                               | 40 |
| 4.5 Community Participation and Sustainable Tree Planting Programmes .....                               | 41 |
| 4.5.1 Rating of overall Community Participation on Tree Nursery Programmes .....                         | 41 |
| 4.5.2 Attendance of Meetings to Discuss the Tree Nursery Programme in the School.....                    | 42 |
| 4.5.3 Frequency of attending Meetings to discuss tree nursery programme .....                            | 42 |
| 4.5.4 Publicizing the Tree Seedlings to the Local Community and schools.....                             | 43 |
| 4.5.5 Level of Publicity of Tree Seedlings .....                                                         | 44 |
| 4.5.6 Participated in Buying and Selling Seedlings.....                                                  | 45 |
| 4.6 Training on the Nursery Management .....                                                             | 45 |
| 4.6.2 Frequency of Attending Training programs on Tree Nursery Management .....                          | 46 |
| 4.6.3 Relevance of the Training.....                                                                     | 47 |
| 4.6.4 Influence of Training on Tree Management on the Sustainability of Tree Nursery<br>Programmes ..... | 48 |
| 4.7 Financial Administration Practices .....                                                             | 49 |
| 4.7.1 Funds Handling from Tree Nursery Programmes.....                                                   | 50 |

|                                                                                           |           |
|-------------------------------------------------------------------------------------------|-----------|
| 4.7.2 Account Opened for Tree Nursery Programme .....                                     | 50        |
| 4.7.3 Regular Deposits of Money from Sale of Seedlings.....                               | 51        |
| 4.7.4 Presence of Financial Records on Tree Nursery Programmes.....                       | 52        |
| 4.7.5 Updating of Financial Records .....                                                 | 52        |
| 4.7.6 Financial Subcommittee for Tree Nursery Programmes .....                            | 53        |
| 4.7.7 Frequency of Meetings of the Financial Subcommittee Members .....                   | 54        |
| 4.7.8 How Money from Sales of Seedlings is spent .....                                    | 55        |
| 4.7.9 Influence of Financial Practices on Sustainability of Tree Nursery Programmes ..... | 56        |
| 4.8 Marketing Strategies and Sustainability of Tree Planting Programmes .....             | 57        |
| 4.8.1 Percentage of Seedling that Survived for Sale.....                                  | 57        |
| 4.8.2 Sale of Seedlings from the Tree Nursery Programme .....                             | 58        |
| 4.8.3 Methods that were frequently used to Market Tree Seedlings .....                    | 58        |
| 4.8.3.1 Marketing by Word of Mouth.....                                                   | 58        |
| 4.8.3.2 Marketing During Parent Meeting.....                                              | 59        |
| 4.8.3.3 Marketing During Chief Barazas .....                                              | 60        |
| 4.8.3.4 Marketing through Churches .....                                                  | 61        |
| 4.8.3.5 Marketing Through Use of Poster.....                                              | 62        |
| 4.8.4 Average Selling Price per Seedling .....                                            | 63        |
| 4.8.5 Profits from Sale of Seedlings .....                                                | 64        |
| 4.8.6 Level of competition from Other Tree Nursery Owners .....                           | 65        |
| 4.8.7 Influence of Marketing on Sustainability of Tree Nursery Programmes.....            | 66        |
| <b>CHAPTER FIVE: SUMMARY OF FINDINGS, DISCUSSION, CONCLUSIONS AND</b>                     |           |
| <b>RECOMMENDATIONS.....</b>                                                               | <b>68</b> |
| 5.1 Introduction.....                                                                     | 68        |

|                                                                                           |    |
|-------------------------------------------------------------------------------------------|----|
| 5.2 Summary of the Finding .....                                                          | 68 |
| 5.3 Discussion .....                                                                      | 69 |
| 5.4 Conclusions .....                                                                     | 72 |
| 5.5 Recommendations .....                                                                 | 72 |
| 5.6 Areas of Further Study .....                                                          | 73 |
| 5.7 Summary .....                                                                         | 73 |
| <b>REFERENCES</b> .....                                                                   | 74 |
| <b>APPENDICES</b> .....                                                                   | 82 |
| Appendix 1: Letter of Introduction .....                                                  | 82 |
| Appendix II :Questionnaire for School Management Committee, Headteachers and Teachers ..  | 83 |
| appendix III: Authorization Letter from National Council for Science and Technology ..... | 91 |
| appendix IV: Introduction Letter from District Education Office, Nyandarua South .....    | 92 |

## LIST OF TABLES

|                                                                                                                | <b>PAGE</b> |
|----------------------------------------------------------------------------------------------------------------|-------------|
| Table 3.1 Population of the Study.....                                                                         | 27          |
| Table 3.2 Sample Size by Category of Respondents .....                                                         | 28          |
| Table 3.3 Operationalization of Variables .....                                                                | 31          |
| Table 4.1: Response Rate.....                                                                                  | 34          |
| Table 4.2: Gender of the Respondents.....                                                                      | 35          |
| Table 4.3: Age of Respondents.....                                                                             | 36          |
| Table 4.4: Level of Education.....                                                                             | 37          |
| Table 4.5: Position Held in School .....                                                                       | 38          |
| Table 4.6: Operational School Tree Nursery Programme .....                                                     | 39          |
| Table 4.7: Response As To Whether the Tree Nursery Programme Is Performing Well.....                           | 39          |
| Table 4.8: Range of Seedlings Grown in the Programme .....                                                     | 40          |
| Table 4.9: Rating of overall Community Participation on Tree Nursery Programme in Schools                      | 41          |
| Table 4.10: Attendance of Meetings to Discuss theTree Nursery Programme in the School .....                    | 42          |
| Table 4.11: Frequency of attending Meetings to discuss tree nursery programmes.....                            | 43          |
| Table 4.12: Participation in publicizing of the tree seedlings to local community and schools...               | 44          |
| Table 4.13: Level of Publicity of Tree Seedlings to neighbouring community and schools.....                    | 44          |
| Table 4.14: Participated in Buying and Selling Seedlings.....                                                  | 45          |
| Table 4.15: Training on Tree Nursery Management .....                                                          | 46          |
| Table 4.16: Frequency of Attending Training programs on Tree nursery Management. ....                          | 47          |
| Table 4.17: Relevance of the Training.....                                                                     | 48          |
| Table 4.18: Influence of Training on Tree Management on the Sustainability of Tree Nursery<br>Programmes ..... | 49          |
| Table 4.19: Funds Handling From Tree Nursery Programmes.....                                                   | 50          |

|                                                                                              |    |
|----------------------------------------------------------------------------------------------|----|
| Table 4.20: Account Opened for Tree Nursery Programme.....                                   | 51 |
| Table 4.21: Regular Deposits of Money from Sale of Seedlings .....                           | 51 |
| Table 4.22: Presence of Financial Records on Tree Nursery Programmes .....                   | 52 |
| Table 4.23: Updating of Financial Records .....                                              | 53 |
| Table 4.24: Financial Subcommittee for Tree Nursery Programmes .....                         | 54 |
| Table 4.25: Frequency of Meetings of the Financial Subcommittee Members.....                 | 54 |
| Table 4.26: How Money from Sales of Seedlings is spent .....                                 | 55 |
| Table 4.27: Influence of Financial Practices on Sustainability of Tree Nursery Programmmes.. | 56 |
| Table 4.28: Percentage of Seedling that Survived for Sale .....                              | 57 |
| Table 4.29: Sale of Seedlings from the Tree Nursery Programme .....                          | 58 |
| Table 4.30: Marketing by Word of Mouth.....                                                  | 59 |
| Table 4.31: Marketing During Parent Meeting.....                                             | 60 |
| Table 4.32: Marketing Chief Barazas .....                                                    | 61 |
| Table 4.33: Marketing Through Churches.....                                                  | 62 |
| Table 4.34:Marketing Through Use of Poster .....                                             | 63 |
| Table 4.35: Average Selling Price per Seedling .....                                         | 64 |
| Table 4.36: Profits from Sale of Seedlings .....                                             | 65 |
| Table 4.37: Level of competition from Other Tree Nursery Owners .....                        | 66 |
| Table 4.38: Influence of Marketing on Sustainability of Tree Nursery Programme .....         | 67 |

## LIST OF FIGURES

|                                      | PAGE |
|--------------------------------------|------|
| Figure 1: Conceptual Framework ..... | 23   |

## **LIST OF ABBREVIATIONS AND ACRONYMS**

|              |                                          |
|--------------|------------------------------------------|
| <b>CFA</b>   | Community Forests Associations           |
| <b>D.E.B</b> | District education board                 |
| <b>DFSC</b>  | Danida Forest Seed Centre                |
| <b>EPA</b>   | Environmental Protection Agency          |
| <b>ESP</b>   | Economic Stimulus Projects               |
| <b>FAO</b>   | Food and Agricultural Organization       |
| <b>GFRA</b>  | Global Forest Resources Assessment       |
| <b>KFS</b>   | Kenya Forest Services                    |
| <b>KESSP</b> | Kenya Education Sector Support Programme |
| <b>MOE</b>   | Ministry of Education                    |
| <b>NGO</b>   | Non- Governmental Organizations          |
| <b>SMC</b>   | School Management Committee              |
| <b>UK</b>    | United Kingdom                           |
| <b>UN</b>    | United Nations                           |
| <b>UNEP</b>  | United Nation Environmental Program      |

## ABSTRACT

Tree planting is an important endeavor which contributes to conservation of environment and maintenance of balance in the ecosystem, fighting soil erosion and absorption of carbon dioxide hence stabilizing the global temperatures. Trees improve the air we breathe and provide food and shelter. In spite of their great contribution to the world and its surrounding, World tree cover has been on the decline due problem of deforestation and increasing population which exert pressure on forest resources hence the need to plant more trees sustainably. In recognition of the need to increase tree cover across the country, the government of Kenya provided funds to schools to establish tree nursery programmes that were meant to be self- sustaining. In Kinangop constituency 20 schools were selected for the programmes. The purpose of this study was to examine the factors influencing sustainability of tree planting programmes in Kinangop Constituency Nyandarua County. The objectives of study were: to assess the influence of community participation in sustainability of tree nursery programmes, to determine how training of project teams influence sustainability of tree nursery programmes, to determine how financial administration practices influence sustainability of tree planting programmes and to establish how marketing strategies influence sustainability of tree nursery programmes in primary schools in Kinangop constituency Nyandarua County, Kenya. The study used a descriptive survey research design. A sample size of 70 members of school community respondents was used, which comprised of chairmen, treasurers, District Education Members, head teachers and teachers of school participating in tree planting programmes. The researcher used purposive sampling method while data was collected by use of questionnaires. Data obtained from the field was sorted, edited and organize using Statistical Package of Social Sciences and the results were presented using tables, percentages and a brief explanation. The results of the study showed that majority of the respondent agreed that community participation influenced sustainability of tree nursery programmes and that training of project teams also influenced tree sustainability of tree nursery programmes in Kinangop Constituency. The study further showed that financial administration practices and marketing strategies significantly influences the sustainability of tree nursery programmes in schools. The recommendations made are that to enhance community participation, communities should be sensitized and educated on the importance of participating in the tree nursery programmes and that aggressive training and marketing campaigns should be embarked followed by constant follow ups from the relevant bodies if the tree nursery programmes will be sustainable in the long run. The findings of this study will be of benefit to the Government in policy formulation in areas of implementing tree programmes in schools. It will also benefit the private sector and Non-Governmental Organizations involved in conservation of the environment through sustainable tree planting programmes and will also contribute to Knowledge on sustainable tree planning.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background of the Study**

Trees are vital to the existence and well-being of our environment. Not only do they improve the quality of the air that we breathe, but they also provide food and shelter for human beings and wildlife, not to mention climate control according to Steiner (2011). By establishing tree nurseries around our communities and planting trees, we make up for the loss we have caused the planet and ourselves through the destruction of forest areas over the centuries. According to Gregersn and Draper, (1989) tree planting is essential to the ecosystem in which they reside, both above and below the ground. Far reaching roots hold soil in place and fight erosion, absorbs and store rainwater which reduces runoff and sediment deposit after storm. Tree planting increases tree cover which has been recognized as important storage site for carbon dioxide(co<sub>2</sub>) the primary greenhouse gas thus help in stabilizing the global temperatures that have increased since the late 19<sup>th</sup> century (Hamburg et al., 2000).

According to the United Nation Food and Agriculture Organization, 2005 report, 6.1% or about 3,467,000 ha of Kenya are forested while the World Bank report published in 2012 indicated that Forest area (% of land area) in Kenya was last reported at 6.09 % in 2010. Forest area is land under natural or planted stands of trees of at least 5 meters in situ, whether productive or not, and excludes tree stands in agricultural production systems (for example, in fruit plantations and agro forestry systems) and trees in urban parks and gardens.

Forest cover in East Africa had dropped by 9.3 percent from 2001-2009. Looking at 12 countries in the region, forests were particularly hard hit near protected areas. Large areas of evergreen forests have been lost from East Africa during the 20th century resulting in carbon emissions, reduced habitat for forest dependent biodiversity, and reduced availability of essential ecosystem services (Pfeifer, 2012).

UNEP recognizes the universal importance of tree planting as both a practical means to conserving the environment and as an effective awareness raising activity, thus it engages in

spear-heading a number of tree planting activities in schools and communities around the world. To address the global diminishing tree cover, various tree planting programmes in schools have been carried out across the world. In the UK, such programmes involving school children and the local community have been undertaken through the Woodland Trust's Tree for All projects. The results of these programmes revealed that involving the communities around schools had a great influence in their success (Baker and Bridgeman, 1994). Similarly, successful projects have been carried out in Cameroon with Community Action for Development in conjunction with Administration of schools in the Bakossi National park area.

A study carried out in Jimma Zone in South West Ethiopia on performance of tree planting projects on communal farms and schools concluded that community involvement in planning, conserving and resource mobilization is critical and a great number expressed interest in involvement in tree planting project (Urgessa, 2003). According to Agea (2007) projects on tree nursery and planting sustainability calls for improved community participation while management and access to forest resources greatly impact on their livelihood, and further affirms the increasing emphasis on community participation as a way of identifying, shaping and delivery of policies and programs.

Kenya has been classified among countries with lowest forest cover and requires 4.5m ha of tree cover to achieve the 10 % threshold of forest cover. The country needs ksh.7.6 billion to reach the 10 % forest cover by year 2030 according to Kenya Forest Service (2012).

Present institutional arrangements to improve and maintain tree cover in Kenya include the Crafting of the 2005 Forest Act, a big step forward which created The Forest Service, a State Corporation established in February 2007 to conserve, develop and sustainably manage forest resources for Kenya's social-economic development. Other steps include introduction of new innovations, most notable being that of Participatory Forest Management whereby the most important of the communities surrounding the forest and their involvement in the management of the Forest has been identified and acknowledged, leading to the creation of Community Forest Associations (CFA's).The Ministry of Agriculture issued the Farm Kenya's Role in Conservation Forest Rules in 2009 which state that all agricultural land must have 10% forest

cover so as to help mitigate global warming, soak up pollution and dust from air and build natural habitats and ecosystem (Basweti,2001).

To increase tree cover and achieve 10 % forest cover, Kenya need to plant approximately 4.5 million hectares which is an area more than two times the size of Mau Complex. KFS propose to achieve this through Farm Forestry or Tree planting within private farms locally known as *shambas*. Other initiatives undertaken by the Government through the ministry of education include the Tree Planting Programmes in Schools in Kenya under KESSP education 3 programmes where 20 schools per Constituency selected to benefit with Funds to start tree planting programmes. The objectives of the tree planting school programmes are not only to improve the school environment but also improve the surrounding environment, impart knowledge on importance of environmental conservation through learning and generally create an income generating activity for the school through sale of seedlings The implementing agency was the ministry of education while the school management committee was to oversee the implementation. (Ministry of Education, 2009) In Kinangop constituency Nyandarua county, 20 schools were selected and each given Ksh. 60,000 to establish a tree nursery. The programmes were meant to be self-sustaining through establishment of a Fund generated from sales proceeds of tree seedlings. Some tree seedlings were to be planted in the schools and the surplus to be sold to neighbouring schools and communities in order to improve on environmental conservation. The school community was targeted to provide market for seedlings and to assist in programme management through school management committees (SMC)

## **1.2 Statement of the Problem**

Tree planting is critical in arresting the global warming phenomenon which has given challenges to many countries around the world including Kenya. Prolonged dry seasons, water shortage and low food production are vexing problems facing communities' due to reduced tree cover across the world (UN FAO, 2010). According to the United Nations Food and Agriculture Organization (FAO) report (2005) on Global Forest Resources Assessment, (GFRA) an estimated 13 million hectares or 0.7 % of world tree cover are lost each year thereby aggravating the world environmental problem. Deforestation and forest degradation result in a dramatic loss of biodiversity and future options for use of trees thus the need to encourage tree nursery and

planting programmes (Kjær and Nathan, 2000). Kenya's forest cover reduced from 12 % to 6.09 % in 2010 as a result of subsistence agriculture, plantation expansion, encroachment by up to 600,000 illegal settler and tree cutting for charcoal (UN FAO, 2010).

In recognition of the need to increase forest cover and reduction of environmental degradation, the Government initiated the tree planting programme in schools, an Economic Stimulus Program (ESP) where 20 schools per constituency were selected and each allocated ksh.60, 000 to establish tree nursery. The government through Ministry of Education gave guidelines on the tree planting fund where each school was to establish a tree nursery. The seedlings were to be sold to neighbouring schools and surrounding community. Funds raised from sales were to be deposited to an ESP tree planting account forming a revolving fund. Accumulated profits were to be used in activities with high multiplier effect in the school and for sustenance of the tree planting program (Ministry of Education, 2009). The District Education Board Nyandarua South report has established that most of the tree programmes in the schools did not succeed beyond the first phase. Despite the government giving guidelines on how to manage the tree programmes, providing funds and training manuals, the tree nursery programmes in most schools did not perform as expected. This study therefore sought to investigate the factors influencing sustainability of tree planting programmes in schools in Kinangop constituency, Nyandarua County.

### **1.3 Purpose of the Study**

The purpose of the study was to investigate the factors that influence the sustainability of tree nursery programmes in schools in Kinangop Constituency, Nyandarua County.

### **1.4 Objectives of the Study**

The study objectives were:

1. To assess the influence of community participation in the sustainability of tree nursery programmes in schools in Kinangop constituency, Nyandarua County.
2. To determine how training of project team influence the sustainability of tree nursery programmes in schools in Kinangop Constituency, Nyandarua County.

3. To determine how financial administration practices influence the sustainability of tree planting programmes in schools in Kinangop constituency, Nyandarua County.
4. To establish how marketing strategies influence the sustainability of tree nursery programmes in schools in Kinangop constituency, Nyandarua County.

### **1.5 Research Questions**

The research questions that guided this study were:

1. How does community participation influence sustainability of tree nursery programmes in schools in Kinangop Constituency, Nyandarua County?
2. How does training of the project team influence sustainability of tree nursery programmes in schools in Kinangop Constituency, Nyandarua County?
3. How do financial administration practices influence sustainability of tree nursery programmes in schools within Kinangop Constituency, Nyandarua County?
4. How do marketing strategies influence sustainability of tree nursery programmes in schools in Kinangop Constituency, Nyandarua County?

### **1.6 Significance of the Study**

The guidelines given by the Government through the Ministry of Education on tree planting programs showed that every benefiting school was to establish tree nurseries from which seedlings were to be sold to neighbouring schools and communities and proceeds re invested in the same program to enhance their sustainability This study will thus assist government in policy formulation in area of implementing of tree nursery programmes in schools and communities. It will assist the private sector, non-governmental organization, schools and local communities in conserving the environment through sustainable tree planting programs. The study will also contribute to knowledge on factors influencing sustainability of tree nursery programmes and also be of value to researchers and academics.

### **1.7 Delimitation of the Study**

The research project covered the 20 schools in Kinangop Constituency of Nyandarua County that benefited from government funding for establishment of the tree nursery programmes. The study target population of 340 included 300 management committee members, 20 head teachers and 20 teachers from the schools under the tree planting programme. The research employed descriptive research design and used questionnaire as the data collection tools.

### **1.8 Limitation of the Study**

The limitations of the study were that some respondents were not available during the limited period scheduled for data collection. Another limitation was transport problem to cover the vast constituency due to poor state of roads, difficulty terrain and bad weather. However to mitigate the limitations, the researcher engaged two research assistants who assisted in administration of questionnaires and follow up through telephone calls and actual visits to the schools.

### **1.9 Assumptions of the Study**

The assumption of this study was that the respondents were available and that they were to answer questions correctly and truthfully. It was assumed that respondents were to have a good understanding on factors influencing sustainability of tree planting programmes and that the variables of the study will not change in the course of the study. As shown in Table 4.1 there was high response rate (90%) and this was due to the fact that the data collection tools were physically administered.

## 1.10 Definition of Significant Terms

**Sustainability:** Sustainability refers to continuous production of seedlings from the tree nursery programmes which are sold to neighboring school and community to generate income. The income generated is re-invested to the tree nursery programme for continuity. In this study, sustainability also means that the tree planting programmes would be managed in a manner that it will continue to generate revenue to the school.

**Community Participation:** It means that the members of school community: school management committee members, parents and teachers will be involved in management of the tree nursery programme, will attend meeting to discuss the programme progress, publicize the tree nursery programmes in their neighborhood for market and tend to the tree nursery. School teachers and students will also participate through watering, potting and ensuring no vandalism takes place on the tree seedlings.

**Training:** Refers to imparting of competencies, skills and knowledge to programme team on tree nurseries care, management and marketing through planned seminars and workshops.

**Financial administration practices:** refers to accounting procedures of keeping and maintenance of financial records like ledgers, sales records, book keeping and cash management. These practices also include budgeting and accountability procedures on the part of programme managers to the other programme members and also to the funding agency, the ministry of education.

**Marketing strategy:** refers to steps taken by programme planners in the schools to ensure quick disposal and sale of mature seedlings to the neighboring community and schools. This is done through advertisement in chief's baraza, churches, marketplaces, word of mouth and through outlets dealing with horticultural products and seeds. It also refers to setting of fair prices for seedling for competitiveness.

**School:** Refer to a public primary school that benefited from government funds under ESP to establish tree nursery

### **1.11 Organization of the Study**

This research project report is made up of Five Chapters. Chapter One outlined the importance of tree planting in reducing land degradation hence conserving and improving the environment. It also highlighted the current situations in the world, Africa and East Africa and Kenya, the region that suffers most from forest degradation. The chapter also provided the purpose; objectives, rationale and the scope of the study. Chapter Two reviewed the relevant literature on factors that influence sustainability of tree planting programmes from a global, Africa and local perspectives. The chapter also presented a theoretical framework and a conceptual framework. Chapter Three described the research methodology that was used in the study. The chapter discussed the research design, target population, sampling procedure, as well as the data collection and data analysis method that the study would use. In the last part of the chapter, the operational definitions of variables table that specified how various indicators were measured. Chapter Four described data analysis, presentation and interpretation. The chapter reported on the main results obtained from analysis of data, interpretation and presentation of results. The presentation was done using tables, percentages, frequencies and a brief explanation. Chapter Five presented a summary of findings, discussions, conclusions and recommendations based on the stipulated objectives in a bid to answer the research questions.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This Chapter reviews the relevant literature on factors that influence sustainability of tree nursery programmes. It particularly focuses on community participation, training, financial administration practices and marketing strategies. These are considered critical in sustainability of tree nursery and planting programmes. The literature was reviewed from global, Africa and local perspectives. The chapter also presented a theoretical framework and conceptual framework on which the study was based.

#### **2.2 Theoretical Framework**

The study was modeled on the participation theory advanced by Oakley (1989). The participatory approach is mainly concerned with the role of the 'people', particularly in terms of power and control over their own lives and resources'. Also a key element of the approach is community mobilization and involvement seen as a process through which action is stimulated by a community itself, or by others, that is planned, carried out, and evaluated by a community's individuals, groups, and organizations on a participatory and sustained basis to improve and enhance the overall standard of living in the community. The theory assumes that participation has a real influence on decision. For instance, greater community participation makes it less likely that decisions are made by external agency. The participatory approach postulates that community participation and involvement at various stages of a programme is one key element to performance, ensures that outcomes suit local circumstances, ensures community ownership and increases sustainability of a programme.

As adopted in this study, participatory theory holds that community participation influences sustainability of tree nursery programme, that participation in training, financial administration and marketing also influences performance of programmes thereby determining sustainability.

### 2.3 Sustainability of Tree Planting Programmes

Sustainability is mainly related to environmental resources, and has been defined in ecology as the amount or degree to which the earth's resources may be exploited and replaced without damage to the environment (Constanza, 1995). Under sustainability of community tree planting programmes, the aim is to encourage people to plant trees in locations where they live and work, apply good practices in planting and management of trees (Taylor & Francis, 2006).

Tree planting in agricultural landscape should be regarded as a valuable resource since their replacement price is close to 6 \$ billion at current tree prices, they provide direct financial benefits for farmers, and they contribute to ecological sustainability by improving catchment health and biodiversity conservation, hence the need to tree nursery and planting programmes sustainably (Reid, 2000).

According to McPherson (2006) trees contribute to their environment by providing oxygen, improving air quality, climate amelioration, conserving water, preserving soil, and supporting wildlife. During the process of photosynthesis, trees take in carbon dioxide and produce the oxygen we breathe. One acre of forest absorbs six tons of carbon dioxide and puts out four tons of oxygen. Further trees can reduce bothersome noise by up to 50% and mask unwanted noises with pleasant, natural sounds. UNEP recognizes the universal importance of tree planting as both a practical means to conserving the environment and as an effective awareness raising activity, thus it is engaged in spear-heading a number of tree planting activities around the world through community participation in order to address the global diminishing forest cover ( UNEP, 2012).

World forest area stands at 39,000,000 km<sup>2</sup> or 26.19 % of land masses. Africa has a forest area of 6,500,000 km<sup>2</sup> or just about 21.80 % while Kenya forest area stands at 13,200 km<sup>2</sup> according to CIA World Fact book 2011. Thus to encourage increased tree cover in different parts of the world, the World Bank has been encouraging institutions and communities to manage tree resources sustainably according to a World Bank (WB) report published in 2012.

Forest cover in East Africa had dropped by 9.3 percent from 2001-2009. Looking at 12 countries in the region, forests were particularly hard hit near protected areas. Large areas of evergreen

forests have been lost from East Africa during the 20th century resulting in carbon emissions, reduced habitat for forest dependent biodiversity, and reduced availability of essential ecosystem services (Pfeifer, 2012). Kenya has been classified among countries with lowest forest cover and requires 4.5m ha of tree cover to achieve the 10 % threshold of forest cover. The country needs ksh.7.6 billion to reach the 10 % forest cover by year 2030 according to Kenya Forest Service (2012). Towards mitigating this challenge, the Government initiated the tree nursery programmes in schools, projects aimed at promoting tree planting in communities around the schools in a sustainable manner.

## **2.4 Community Participation in Sustainability of Tree Planting programmes**

Sustainability of tree planting programmes is influenced by the level of community participation and ownership of the programmes. Citizens and community leader's participation in planning and implementing tree care programs and events and understanding of tree conditions will influence attainment of programmes goals. Brager *et al.*, (1987) defines participation as a means of educating the citizens and to increasing their competence. It is a vehicle for influencing the decisions that affect the lives of community and an avenue for transferring power to enable community design its future through control of resources. Westergaard, (1986) defined participation as collective efforts to increase ownership and exercise control over resources and institutions on the part of groups and commitments of those hitherto excluded from control. Alternatively participation can be viewed as a way of empowering people and communities, building social capital and redistributing power from central authorities to communities; participation as an end in itself, rather than a means to an end. These definitions agree that participation is collective effort that enables a community to make decisions, own and design its future through increased control of resources.

For purpose of this study, we will take the functional definition as provided by The World Bank's working Group on Participatory Development which defines participation as a process through which stakeholders influence and share control over development objectives, and the decisions and resources which affect them (World Bank, 1995).

According to Rifkin (1986) community participation leads to empowerment which provides opportunities and experiences, that allow community people to be actively involved in decision making about the project and programs which involves them. It ideally consists of a locally organized and planned, community intervention, where the individual stakeholders and other development workers collaborate on a range of complementary interventions in order to achieve set development or programme objectives.

According to Frank and Smith (1999) successful projects should fulfill four basic principles in order to effectively use community values and expertise to create locally relevant solutions for their internal problems. Successful projects often: encourage the participation of a variety of people, are mainly controlled by community members, empower the community members, and include a method for long term evaluation. It is important that community members be motivated to participate in the programs. The community programme process requires the active participation of a variety of people because a mixed group will provide a better representation of the widespread community interests. Getting the community involved should be an objective of the programme, and even if people are not interested in participating, they should be kept well informed of any progress.

Studies carried out in Heredia, Costa Rica showed that the participation of the community members in tree planting programmes can be achieved by stressing a sense of ownership of trees, using their strengths and skills, increasing the opportunity for social interactions to unite the community and creating partnerships with the uninvolved stakeholders. Community participation in tree planting programs while delivering instrumental benefits in the form of increasing tree cover, also encourage community interaction and improve community spirit, fostering a sense of ownership in communities and empowering them to change their neighborhood's for the better. In addition, Participation in management of programmes can further be used instrumentally to improve tree nursery programme outcomes, remove or ease conflict, increase acceptance, and achieve greater sustainability of the programme besides expectation of reducing vandalism (Sims and Sinclair, 2008).

Nag-Chowdhury (1989) identified the aspects to consider towards meaningful community participation i.e. the kind of participation under consideration, who participates and how

participation occur. Peck and Scott (1998) identified various characteristics that participating communities share in common. Among them are: participating communities are open to involvement by all groups and responsibilities are divided up so that the special talents and interests of contributing organizations are engaged. Participants conduct their business openly and publicize it widely. Citizens are well informed about the community's work and about their opportunities for personal involvement in meaningful roles, there is no such thing as a bad idea. People are encouraged to offer their best for the common good. All persons are actively welcomed, regardless of color, age, race, prior community involvement, level of education, occupation, personal reputation, handicap, religion, or any other factor. Finally, participating communities operate openly and with an open mind. Leaders are not ego-driven but focused on operating a high-quality, open decision-making process.

According to Kaplan and Kaplan (1989) success of projects and programs in a community depends on the level of involvement. He links involvement and identity and says that personal identity is ultimately related to the place where one lives and how transformation is perceived by the self and others. This is augmented by the degree to which one has been personally active and involved in the transformation. Participation in creating the place or in sustaining it as a local resource is hypothesized to enhance personal identity through an increased sense of connection and ownership, as well as through receiving the respect of the community. Involvement itself is a source of psychological benefit that is hypothesized to further involvement that ramifies and extends to other programmes.

A study carried out in Ondo State in Nigeria indicates that factors such as socio-economic benefits, age and education influence people's participation in tree planting programmes. But more important, people participate in tree planting activities if they are able to get important livelihood sustaining products from the forests, example, fuel wood and fodder (Victor and Bakare, 2004). Further the study reveals that majority of farmers participate in tree planting programmes because of anticipated economic benefits, environmental benefits and/or because of social status. They also observe that poor socio-economic backgrounds of farmers in terms of occupation and level of income influences the extent of their participation in tree planting programmes. People's level of education also influences their participation in tree planting programmes.

Age is also one of the factors that have been observed to determine community participation in tree planting activities. While Victor and Bakare (2004) observe that most young farmers participate in tree planting activities because they are able to plant trees and harvest them within their lifetime. Maskey *et al.*, (2003) argue that older people tend to participate more in tree planting activities than younger people because they are retired and have free time to participate in meetings. Further, landholding significantly determines community participation in forestry activities; the hypothesis being that wealthier people are more likely to participate in higher levels of environmental management and the assumption that they have to maintain their influential status and perceive higher benefit with less opportunity cost of participation.

Community participation in tree planting programmes promotes ownership of the programme within the community. People are most likely to be committed to carry something through if they have a stake in the idea. One of the biggest barriers to action is lack of ownership. The antidote is to allow people to have a say in the programme. In practice that means running brainstorming workshops, helping people think through the practicality of ideas, and negotiating with others a result which is acceptable to as many people as possible (McPherson & Simpson, 2000).

## **2.5 Training of project team on Management in Sustainability of Tree Planting**

Training is a learning process that involves the acquisition of knowledge, sharpening of skills, concepts, rules, or changing of attitudes and behaviors to enhance the performance of tasks. According to Patrick (1992), training is the systematic development of the attitudes, knowledge, skills and behavior patterns required by an individual in order to perform adequately a given task or job which results in improved performance. It is the process by which people skills, knowledge and attributes are enhanced to enable them to carry out specific responsibilities to the required standards. The focus of training is the job/task thus it's specific to the needs of individual and organization (Fillipo, 1984).

Trainers in a project are mainly concerned that people become competent to carry out their duties effectively and not that they will do things in a certain way. To train someone to do a job skillfully, reliably and with confidence entails a range of phases and learning activities. This includes teaching basic skills and knowledge; providing opportunity to practice in a safe

environment; providing opportunities to work closely under the guidance of an experienced colleague; providing the person being trained with opportunities for independent work where the trainee can call on or review progress with an experienced colleague; or encouraging group working where team members can learn to work together and help one another overcome difficulties and adapt to the norms of the group (Garavan,1994).

Training should result in improved job performance and other positive changes like acquisition of new skills. In addition, training enables consistency in performance across conditions (Kraiger *et al.*, 2004). Training efforts produce improvements in the quality of the labor force, which in turn is one of the most important contributors to national economic growth. Training of people enables them to participate effectively in tree planting programmes in a community. Further it's critical and important to create public awareness and involvement at all stages of programme. More important secure market is essential and involvement of school children (Ssembajjwe, 1998). A community's willingness to grow trees on their farms is a function of their attitude towards advantages and disadvantages of growing trees, hence the importance of training them on tree planting and its importance.

Training on people and trees requires programme planners to learn about local community, local social and economic unit of organization and incentives for local participation and for social forestry. Training is a powerful tool for improving individual and team support in a programme. Tree planting programme require training in leadership qualities such as commitment, organization, and in ability to attend to details and navigate obstacles. Important aspect of training for a tree nursery programme include nursery types, how to set up a nursery, steps in nursery establishment, tools and equipment, sources of seeds, management and pest and disease common in a nursery and their control. Tree nursery managers need to be equipped with not only the knowledge on the popular image of a nursery as that of a supplier of garden plants, but also on the wider range of nursery functions like propagation, growing out or retail sales and on their importance to many branches of agriculture, forestry and conservation biology. Training should also focus on tree seeds and seedlings relevant to specific geographical location, soil type and on nursery establishment and care (Simon, 1996).

Taylor and Francis (2006) noted that establishment of successful tree nursery and planting programmes are constrained by the lack of technical skills among the potential nursery operators and the inadequacy of extension services to facilitate acquisition such skills. Therefore planning and implementation of effective training program is requisite to sustainable tree planting programmes.

There are different aspects of trainer's competencies requisite for effective training program. Among them includes delivery of content in a logical way from beginning to the end, use of visual aid to reinforce learning, ensuring audience participation by involving them and providing clear instruction. Further to these are the technical competencies by teaching technically accurate content, gauging audience level of technical knowledge and adjusting presentation accordingly. These competencies on the part of a trainer will ensure that participants in tree nursery and tree planting training program will be adequately trained to carry out a sustainable programme. The training program should focus on the unskilled staffs in the nurseries that need to undergo necessary training to improve their performance and the quality of the seedlings produced (Mailuma *et al.*, 2006). It should likewise address to trainee characteristic and ability level necessary to learn program content.

Study carried out in Philippines revealed that tree nursery establishment were constrained by the lack of technical skills among the potential nursery operators and the inadequacy of extension services to facilitate acquisition of such skills besides limited marketing arrangement for tree products (Taylor and Francis, 2006). Provision of tree seed of a good quality as well as training and extension have been seen as important means to achieve this objective (Nathan, 2000).

According to Vaughan *et al.* (2003) any training program should ultimately generate expected outcome as defined as the amount of original learning that occur during the training program and the retention of acquired knowledge and its application in the real life situation. In the case of tree planting training course, this is manifested by the effectiveness of how well schools manage the tree nurseries and the level of sustainability of the programme as envisioned in goals and objectives. Further an effective training program under tree planting program should be relevant to needs of beneficiaries, should ensure element of communication with farmers are integrated in training course. It should also aim to increase awareness about farmers as ultimate beneficiary of

tree planting in their farms and should seek to establish seed sources besides focusing on training needs assessment.

## **2.6 Influence of Financial Administration Practices in Sustainability of Tree Planting programmes**

Financial administration in tree nursery programmes requires keeping of all financial records, administrative documents, information and books which is important in assessing the performance of the project at regular interval (David, 2005). A proper record of all financial documents will give feedback to project stakeholders and can improve the management of the programme. Keeping clear and accurate entries of all accounting records especially on income from sales of seedling, expenditures and savings will provide programme stakeholders and management right information from which to assess the sustainability of the tree planting programmes. Keeping records of information gathered from buyers will provide basis for decision making based on clear and accurate information on market needs and requirements. Further, proper record keeping help maintain confidence and trust from the stakeholders and school community.

Financial administration and management is critical for programme success and its sustainability. Financial administration requires management skills to be imparted to a community and to programme leaders for a widespread support. Financial administration also calls for an effective evaluation tools. Besides, project leaders and managers should be equipped with basic skills in financial management starting with the critical areas of cash management and bookkeeping. This should be done according to certain financial controls to ensure integrity in the bookkeeping process. They should also learn how to generate financial statements and analyze those statements to really understand the financial conditions of the projects (Fridson and Alvarez, 2011).

Tree nursery and planting programmes require careful assessment of expenditures related to tree care and management. Further, the functional benefits and associated economic value of tree planting activities should be described. This is a necessary process for creating cost effective programs. Production of quality seedlings is neither cost free nor sustainable unless costs are

recovered. These costs include purchase of seeds, seedbed preparation, labor, water supply among others (Briscoe, 1996). To ensure programme sustainability income generated from sales must be sufficient to operate the programme, finance its expansion and help replace worn out infrastructure. The infrastructures in the nurseries need appropriate renovation and upgrading, also there is need for the provision of appropriate nursery inputs like chemicals, equipment and implements; standard humidity propagators; and functional cold room and/or refrigerator for seed storage with constant power supply and back-up in case of power failure (Larbi *et al.*, 1996). Identification of financial resources and management is critical for establishment of tree nursery. Availability of seeds funding and experience of nursery operation is also of importance.

Although costs are still of concern, the administration provides a nursery budget that is adequate to meet the project needs and to propel it to perpetuity. The administration is required to provide incentives and financial support in form of proper remuneration to tree nursery handlers. Nursery management can affect gains from tree improvement programme (South, 1990). Budgeting is a prerequisite for proper management and implementation of any tree nursery and planting programme. A budget depicts what you expect to spend (expenses) and earn (revenue) over a time period. Budgets are useful for planning finances and then tracking if one is operating according to plan. They are also useful for projecting how much money is need for a major initiative, for example, in tree nursery programme, buying seeds, payments on labor, water storage tanks, potting, fencing etc. A budget is a financial administration tool. Financial administration is important in identifying what financial resources are needed. Typically, financial administration management results in very relevant and realistic budgets hence achievement of project goals (Campsey *et al.*, 1995).

For new programmes, like establishing of tree nursery programmes in schools, biggest challenge is likely to be managing cash flow from sales of seedlings. Thus, probably the most important financial statement for a new programme is the cash flow statement. The overall purpose of managing your cash flow is to make sure that you have enough cash to pay current bills. Businesses can manage cash flow by examining a cash flow statement and cash flow programme. Basically, the cash flow statement includes total cash received minus total cash spent. Cash management looks primarily at actual cash transactions. According to Flanney (2009) getting started in the plant production business involves financial investment; controlling

risk; and many hours of time therefore the need for sound financial and management practices. Strong interests in tree nursery and planting and sound business management skills are essential to operate an economically successful nursery business (Ajayi, 2002).

## **2.7 Marketing Strategies in Sustainability of Tree Planting programmes**

Marketing is the process of communicating the value of a product or a service to customers. It's the art of selling or promoting a product or a service to the customer (Kotler, 2012). According to Homburg et al (2009) marketing is the process that allow an organization to concentrate resources on the optimal opportunities with the goal of increasing sales and achieving sustainable competitiveness of the organization. It involves designing a market plan designed to fill market needs and reach market objectives while marketing strategies involve careful analysis of external and internal environment keeping in mind the goals of the organization

Marketing for tree seedlings from tree nurseries should focus on reaching small scale farmers since the future of trees is on-farm (Simons, 1997). This statement is likely to hold true because trends indicate that tree-planting on-farm is increasing, and because of the growing awareness of the need to grow trees on-farm in the future. Although uncertain it has been estimated that small farmers actually constitute a majority of tree planters, that the number of trees on-farm exceeds the number of trees in plantations, and that this gap tends to increase. Many rural people depend on products from trees. Even marginal improvements in productivity can be important to their livelihoods hence the need to aggressively market tree seedlings to the rural farmers (Kjaer and Nathan, 2000). Applying high quality planting material is one way to improving stability and productivity of small scale tree farmers as well as plantation farmers. Thus the need to supply high quality tree seedling to farmers and other small-scale tree planters which can be achieved through sales from tree nurseries as established in schools or community (Aalbæk, 1997).

The nursery business is a highly competitive pursuit; but there will always be a place for enthusiastic, well organized individuals who can find a niche market for plants (Mailuma, *et al*, 2006). Holding too few stocks of seedling as it is usually the case with private nurseries means frequent ordering of goods and there is the danger of seedlings running out of stock. This could lead to loss of production and profit. On the other hand, public nurseries like school nurseries can

build large stock of seedlings with proper care and this can lead to increased sales with intense marketing, hence increased profits. However, it cost money to hold large seedlings stock; in terms of storage space, equipment and labour, besides the direct cost of the seedlings. Hence, a balance is needed between having too little or too much seedlings stocks in school tree nursery (Garcia and Jayasuriya, 1997).

Study on commercial distribution of tree seedlings in small bags In Nepal showed that there is improve seed distribution when appropriate marketing guidelines are developed especially for group tree nurseries (Nathan *et al.*, 2005). Further, for sustainability of such programmes focus should be on need to increase cost effectiveness and turn-over, seek a more diversified market and introduce seed quality control and brand name for each nursery project (Nicholson, 2001). Marketing through advertisement for tree seeds can be done low cost by linking with forest extension radio programs. All stakeholders should be consulted on species selection. Pricing of tree seedlings should cover cost including commission and profits

Marketing strategies by management of tree planting programmes in schools should strive for collective marketing where each stakeholder and community member is involved. Collective marketing facilitates meeting market demand, reduce the cost of getting products to the market and improves the bargaining power of farmers (Agarwal, 1994). This implies competitive advantage for participants, but collective marketing is not likely to be enough to allow smallholders to take full advantage of market opportunities. Being attentive to market signals and to opportunities is one important condition and can link farmers to wider economic networks (Swallow *et al.*, 2001).The success and sustainability of collective marketing is a function of not only the supply and demand of produce, but also coordinated action of individual members and supported from external organization (Stockdridge and Doward, 2003).

According to Nathan (2001) marketing for tree nursery seedlings should look at possibility for retail sales of small quantities of tree seedlings to smallholders through private enterprises already dealing with horticulture and agricultural seed.

Studies carried out in Philippines revealed that tree nursery establishment were constrained by the lack of technical skills among the potential nursery operators and the inadequacy of extension

services to facilitate acquisition of such skills besides limited marketing arrangement for tree product.

The interest of smallholder to sustain seedling production depends on market demand and incentives, which translates to financial benefit. Activities that will assist smallholder nurseries to achieve full potential have been identified as: available nursery technologies to produce high quality planting materials in sufficient quantity; building farmer groups to facilitate seedling production and enhance the scale of product marketing; building partnerships with various service providers and other stakeholders to address technical, institutional, marketing and policy issues that may hamper the operation of smallholder nurseries; access to markets and market information; and provision of incentives and policy support (Mercado and Duque-Piñon ,2008).

Appropriate distribution and marketing strategy is necessary in order to address the problem related to distance from the nearest tree nursery yard and household farms since it does not pay for small-scale tree planters to travel long distances in order to get hold of small amounts of seedling for their farms. Effective and sustainable marketing should thus address the possibility for retail sales of small quantities of seedlings to smallholders through private enterprises distributed across the market centers that are already dealing with horticulture and agriculture seeds (Nathan, 2001).

According to Nicholson (2001) development of guidelines for appropriate marketing and networking consultancy strategy will lead to increased sales of seedling and improved distribution to forest tree users and farmers. This may also lead to increased cost effectiveness and sales turn over. Seeds and seedling market is affected by organizational limitations of tree nursery owners who operate individually. In the case of organized nursery like school tree nursery programmes, the main marketing challenge would be market competition from independent nursery operators. Thus to increase output, sales and gain market access collective action is recommended (Taylor and Francis, 2006).

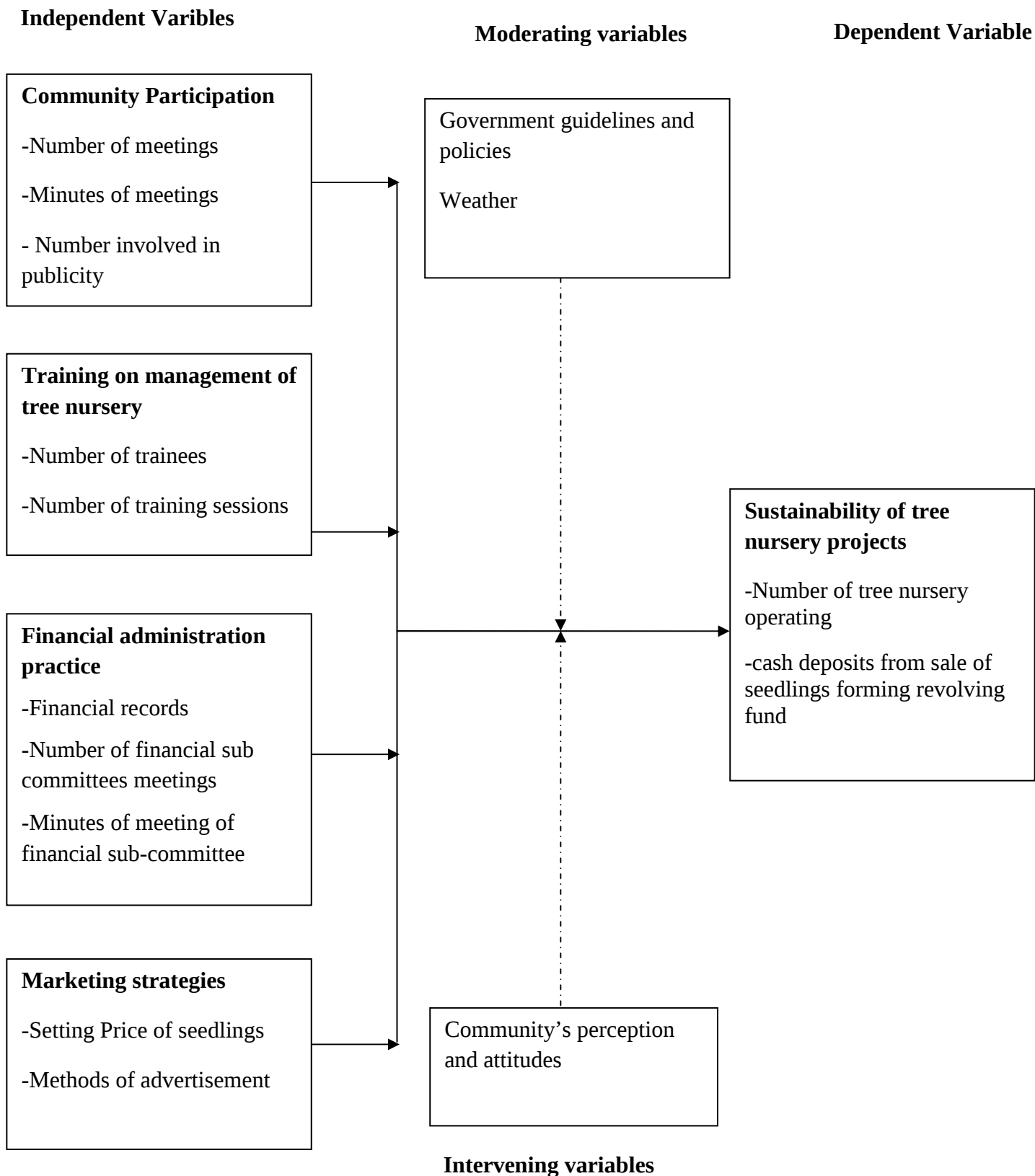
Sale of tree seedling is highly seasonal business, concentrated in spring and autumn. There is no guarantee that there will be demand for the product. It is normally be affected by temperature, drought, and market competition from individuals owners of tree nurseries. According to

Rosscheleau (1987) marketing of tree seedlings requires an understanding of tree growing strategies as determined by farmers overall livelihood and resource bases. Households select livelihood strategies to pursue these objectives by use of resources to which they have access. Increasing demand for tree products may result from new tree use or product or demand from external markets. Further declining land quality and farm size may create social need for tree shrubs as fences or boundaries. This therefore calls for tree nursery management to seek to understand these dynamics on farmer's livelihood pursuits.

According to Denning (2001) farmers have problems getting tree seed of good quality, of special tree species or of any tree species they need. Hence, there is a need for new approaches to distribution of tree seedlings from the well-established tree nurseries in schools or in the community. Further, lack of seed and seedlings constitute a serious constraint for smallholders to fully utilize the benefits of trees. Even when planting material is available, it is often insufficient with regard to choice of species or provenance as well as genetic and physiological quality. Schrekenberg (2005) noted that many tree planting farmers normally obtain their planting materials without the help of any marketing or advertisement strategy. These farmers find it difficult or expensive to obtain what they need for planting. They also collect their tree planting materials in the form of seed, cuttings, or wildlings or they obtain plant materials from other farmers. Majority of these materials will be collected locally or come from unknown sources and often be of low quality. There is therefore a great need to ensure that farmers get access to quality planting materials which can be availed to users from established tree nurseries. This can be attained through effective marketing by tree nursery operators (Moestrup, 2007)

## **2.8 Conceptual Framework**

The interrelationship between the key variables identified for investigation in this study is shown in Figure 1



**Figure 1: Conceptual Framework**

In this study sustainability of tree nursery programmes was conceptualized as the dependent variable while community participation, training, financial management practices and marketing strategies as the independent variables. Government regulations and weather were considered as moderating variables while community's perception and attitudes were taken to be the intervening variables.

## **2.9 Knowledge Gap**

To have a sustainable tree planting programme in schools, it is important for the school management to have a clear understanding of the factors that influence sustainability of tree planting these programmes. To close the gap between the factors that influence sustainability on tree planting programmes in schools and managing the tree nursery programmes in Kinangop Constituency Nyandarua County, there is need for comprehensive research. While there is evidence from the literature review and comparative studies on factors that influence sustainability of tree nursery programmes which includes understanding of the need to involve the community in planning and implementing of tree care programme (Brager *et al.*, 1987), further, there is training of programme teams which leads to consistency of results and improved performance of the tree programmes and programmes ( Kraiger *et al.*, 2004)., there is still inadequate studies on these factors and more so on the factors that influence sustainability of tree nursery programmes in Kinangop Constituency in Nyandarua County. The available studies have been done on a wide geographical area which has come up with generalized findings and conclusions not specific to certain County or Country. This study therefore sought to specifically find out the factors that influence sustainability of tree nursery programmes in Kinangop Constituency in Nyandarua County Kenya.

## **2.10 Summary**

This chapter reviewed the relevant literature on the factors that influence the sustainability of tree planting programmes. The wide range of literature reviewed on sustainability of tree planting program pointed out that community participation and involvement is critical in ensuring the success and sustainability of tree nursery and planting programmes especially in a school environment or community. Further, the literature pointed out to the critical role played by

training on tree nursery management, the contribution of sound financial management and the impact of marketing on sustainability of tree planting programmes. The chapter also presented a conceptual framework and theoretical framework on which the study was based on.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter describes the research design chosen for this study. It outlines the target population, sampling procedure as well as the data collection methods that were employed. It explains how validity and reliability was established and data analysis method that the study used. Operationalization of variables was also presented. The chapter also presents data analysis, reporting, ethical issues and expected outcomes from the study.

#### **3.2 Research Design**

Research design is a plan of action that enables a researcher to answer research questions and achieve the study objectives. The study adopted a descriptive survey design. The major purpose of descriptive research is to describe the state of affairs as it exists at present. According to Mugenda and Mugenda (1999) descriptive survey research is one of the best methods available to researchers interested in collecting original data for the purposes of describing a population which is too large to observe directly. The survey design also permitted the gathering of information from respondents relative quickly and inexpensively. This was a major advantage for this study considering that Kinangop Constituency is an expansive area and the researcher had limitation in terms time and resources.

#### **3.3 Target Population**

Target population is defined as a group of individuals, objects or items from which samples are taken for measurement Mugenda and Mugenda (1998). The population of this study comprised of the school community namely school management committee who were 15 for every school, 20 head teachers and 20 teachers of schools that got government funding for tree planting programme in Kinangop constituency Nyandarua County. The total population of the study was 20 schools with a target population of 340 respondents.

Table 3.1 shows the target population in the tree nursery programmes.

**Table 3.1 Population of the Study**

| Category                    | Number of schools | Total number per school | Target population |
|-----------------------------|-------------------|-------------------------|-------------------|
| School management committee | 20                | 15                      | 300               |
| Head teachers               | 20                | 1                       | 20                |
| Teachers                    | 20                | 1                       | 20                |
| Totals                      | -                 | -                       | 340               |

### **3.4 Sample Size and Sampling Procedure**

Sampling is the process of selecting appropriate number of subject from a defined population (Kothari, 2004). The sample size is a representative of target population. Out of the 20 schools that had tree planting programmes the researcher selected 10 schools. This represented 50 percent of the tree nursery programmes in the constituency. According to Mugenda and Mugenda (1999) ten percent of the population in a social or descriptive study can be used as a representative sample. In addition as the sample size increases, the characteristic of the sample approaches the characteristic of the population as is the case in sampling the 10 schools for the study.

Purposive sampling method was used to select school executive committee members comprising of Chairman, Treasurer, DEB member and 2 other committee members from the 10 schools. 10 headteachers and 10 teachers were also purposively chosen for the study. This approach was used because these people were taken to be most relevant to the programme and were deemed to have the required information on tree programme. The total number of respondents was 70 people.

**Table 3.2 Sample Size by Category of Respondents**

| Category                    | Population | Sample size |
|-----------------------------|------------|-------------|
| School management committee | 300        | 50          |
| Head teachers               | 20         | 10          |
| Teachers                    | 20         | 10          |
| Totals                      | 340        | 70          |

### **3.5 Method of Data Collection**

Data was collected by use of self-administered questionnaires. This research instrument was based on the objectives of the study and used both open and closed form of questions. The choice of this method of data collection was selected because questionnaires can reach a large number of respondents within a short time and with little cost. At the same time questionnaires enabled the respondents to remain anonymous and honest in their responses (Kasomo, 2007).

### **3.6 Validity of Instrument**

Validity is the accuracy and meaningfulness of inferences which are based on the research results (Kathuri and pals 1993). This implies that validity is the degree to which results obtained from the analysis of the data actually represent the phenomenon under study. Internal validity was ensured by checking the questions and ascertaining that they provided the type of responses expected. The researcher also consulted the experts in the field of research and more so the supervisor. This helped to ensure the questionnaires content was comprehensive and adequate for it to measure what it was supposed to be measure. External validity was ensured by ensuring the sample was a representative of the target population. The pilot test was used to determine the extent to which the content of the instrument was appropriate and it measured what the researcher wanted to find out.

### **3.7 Reliability of the Instruments**

According to Mugenda and Mugenda (1999) reliability of measurement is the degree to which a particular measuring procedure gives similar results over a number of repeated trials. Reliability

in research is influenced by random error which is the deviation from a true measurement due to factors that have not effectively been addressed by researcher. According to Berge (2001), the use of consistent and systematic line of questions is important for reliability and for possible replication of the study. The researcher used pilot test form of piloting where split half method was applied. The results were analyzed using Statistical Package for Social Sciences computer Software and the results were correlated to determine consistency. The results showed the questionnaire had a reliability index of 0.8106. According to Orodho (2004) a correlation coefficient of about 0.8 should be considered strong enough to judge the instrument as reliable for the study. Thus the instrument was reliable enough to elicit data as required by the research questions.

### **3.7.1 Pilot Survey**

Before administering the instrument to the sample representing the target population, a pilot study was conducted to three schools in the neighbouring Kipipiri constituency with the aim of testing the instrument. The pilot was carried out to 20 respondents who represented 28.6% of the sample size. This helped to alleviate usability issues.

### **3.9 Method of Data Analysis**

Data analysis is the process of bringing order to data and manipulating it (Kasomo, 2007). It involves organizing data into patterns, categories and basic descriptive units. Data was first entered into Statistical Package for Social Sciences Version 20.0 computer software to facilitate analysis. Information from the analyzed data was summarized using tables, frequencies and percentages followed by a brief explanation.

### **3.10 Ethical Issues**

The researcher sought permission to carry out the research from the relevant authorities. Authority was sought from the University of Nairobi and clearance to carry out the study was also sought from the National Council for Science and Technology. An introduction letter from District Education Office, Nyandarua South was obtained. The respondents were assured of confidentiality by being informed not to write their names on the questionnaire and that all

information given will be used only for the purpose of the intended study. The principle of voluntary participation was strictly adhered to since respondents were not coerced into participating in the research.

### **3.11 Operationalization Definition of Variables**

An operationalization of variables table specified how a concept was measured. Table 3.3 described the variables that were used as indicators in the study and the corresponding measurement scales.

**Table 3.3 Operationalization of Variables**

| <b>Objectives</b>                                                                                   | <b>Variable</b>                                    | <b>Indicator</b>                                                                                | <b>Measurement</b>                                                        | <b>Measurement Scale</b>             | <b>Tools of Data Analysis</b> | <b>Method of data analysis</b> |
|-----------------------------------------------------------------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------|-------------------------------|--------------------------------|
| To assess the influence of community participation in the sustainability of tree nursery programmes | Independent variable:<br>Community participation   | -Attendance of meeting<br>-number of members<br>-number of members buying and selling seedlings | -minutes of meeting<br>-List of members<br>-records of buyers and sellers | Ordinal,<br>nominal<br>Ratio         | Percentages<br>Frequencies    | Descriptive                    |
| To determine how training of project teams influence the sustainability of tree nursery programme   | Independent variable:<br>Training of project team. | -Number of trainings<br>-Attendance to Training                                                 | -Number of sessions<br>-frequency of attendance                           | Ordinal<br><br>-ratio<br><br>Nominal | Percentages<br>Frequencies    | Descriptive                    |

|                                                                                                   |                                                         |                                                                                                                                  |                                                                                                                                              |                                      |                            |             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------|-------------|
| To establish how financial administration influence the sustainability of tree nursery programmes | Independent variable:<br>Financial administration       | -Financial records<br>-Number of financial sub-committee Meetings<br>-Attendance of financial sub-committee meetings             | -Budget records<br>-sales records<br>-stock register<br>-bank accounts record<br>-records of financial sub-committee<br>-minutes of meetings | Ordinal,<br>Nominal                  | Percentages<br>Frequencies | Descriptive |
| To determine how marketing strategies influence sustainability of tree nursery programmes         | Independent variable:<br>marketing strategies           | -Prices of seedlings<br>-mode of advertisement<br>-publicity                                                                     | -selling price per unit<br>-number of barazas, fliers, parents meetings                                                                      | Ordinal<br><br>Nominal               | Percentages<br>Frequencies | Descriptive |
| To determine factors involved in the Sustainability of tree nursery programmes                    | Dependent variable:<br>Sustainability of tree nurseries | -Status of tree nursery<br>- number of tree nursery operating<br>-cash deposit from sale of seedlings<br>-seedling survival rate | -number of operating tree nursery<br>-bank statement<br>-number of seedlings                                                                 | Nominal<br><br>Ordinal<br><br>-Ratio |                            | Descriptive |

### **3.12 Summary**

This chapter discussed the research design chosen for this study. Purposive sampling technique was used in selecting respondents who participated in the study. Data was collected by use self-administered questionnaires. An operationalization of variables which analyzed the key variables identified for investigation in this study was also represented in this chapter.

## CHAPTER FOUR

### DATA ANALYSIS, PRESENTATION AND INTERPRETATION

#### 4.1 Introduction

This chapter reports on the main findings from data collected and analyzed from the study, guided by objectives and research questions of the study on the factors influencing sustainability of tree planting programmes in schools in Kinangop Constituency in Nyandarua County, Kenya. The respondents were sampled from 10 schools which participated in tree nursery programme. Data generated from this research was mainly quantitative and was analyzed using frequencies and percentages. Presentation was done using tables and their implications discussed.

#### 4.2 Response Rate

A total of 70 questionnaires were administered to the sampled respondents in 10 schools which participated in tree planting programmes in Kinangop Constituency Nyandarua County. The response rate of the respondents are presented in Table 4.1

**Table 4.1: Response Rate**

| Category        | Frequency | Percentage |
|-----------------|-----------|------------|
| Responded       | 63        | 90         |
| Did not respond | 7         | 10         |
| Total           | 70        | 100        |

As shown Table 4.1, there was a 90% response rate which the researcher found sufficient to proceed with data analysis. This agrees with Mugenda and Mugenda (2003) who suggests that for generalization, a response rate of 50% is adequate for analysis, 60% is good and a response rate of 70% and above is excellent. The high response rate is attributed to the fact that the

researcher personally administered the questionnaires to the respondents and engaged two research assistants beside follow up through telephone phone calls.

### **4.3 Demographic Information of the Respondents**

In this section the study sought to establish the demographic data of the respondents and looked at their gender, age, education level and position held in schools.

#### **4.3.1 Gender of the Respondents**

Table 4.2 present data on gender of the respondents.

**Table 4.2: Gender of the Respondents**

| <b>Category</b> | <b>Frequency</b> | <b>Percentage</b> |
|-----------------|------------------|-------------------|
| No response     | 2                | 3.2               |
| Females         | 28               | 44.4              |
| Males           | 33               | 52.4              |
| Total           | 63               | 100               |

Table 4.2 indicates that there was a small gender disparity in the responses of the respondents. This implies that each gender was well represented in management of tree nursery programs thus responses were not gender biased.

#### **4.3.2 Age of Respondents**

Table 4.3 shows data on the age of the respondents

**Table 4.3: Age of Respondents**

| Category             | Frequency | Percentage |
|----------------------|-----------|------------|
| No response          | 1         | 1.6        |
| Below 30 years       | 0         | 0          |
| 31 years to 40 years | 21        | 33.3       |
| 41 years to 50 years | 31        | 49.2       |
| Above 50 years       | 10        | 15.9       |
| Total                | 63        | 100        |

Table 4.3 indicated that all the respondents were mature persons aged 30 years and above. They should therefore be conversant with the benefits of tree growing and had ability to respond on subject matter.

#### **4.3.3 Level of education**

Table 4.4 shows data on the level of education of the respondents.

**Table 4.4: Level of Education**

| Category      | Frequency | Percentage |
|---------------|-----------|------------|
| No response   | 1         | 1.6        |
| Primary level | 0         | 0          |
| Secondary     | 8         | 12.8       |
| Certificate   | 15        | 23.8       |
| Diploma       | 27        | 42.8       |
| Degree        | 12        | 19.0       |
| Other         | 0         | 0          |
| Total         | 63        | 100        |

Table 4.4 indicates that almost 90% of the respondents had acquired extra post-secondary qualification and noting the study population was made up of school management committee, head teachers, and teachers in the selected schools, it is not surprising that all of them had at least secondary education. This implies that the respondents had adequate knowledge to comprehend the questions being asked by the researcher.

#### **4.3.4 Position Held in School**

Table 4.5 shows data on the positions held in the school by the respondents.

**Table 4.5: Position Held in School**

| Category   | Frequency | Percentage |
|------------|-----------|------------|
| Chairman   | 8         | 12.7       |
| Secretary  | 7         | 11.1       |
| Treasurer  | 12        | 19.0       |
| DEB member | 19        | 30.2       |
| SMC member | 17        | 27.0       |
| Total      | 63        | 100        |

Table 4.5 shows that all key positions in school management were well represented in the study and that at least all the respondents were involved in the general running of the schools and therefore could provide relevant information required for the study.

#### **4.4 Operational Status of Tree Planting Programmes**

In this section the study sought to establish whether tree nursery programmes were operational, their level of performance and range of seedlings grown in most schools.

##### **4.4.1 Operational status of Tree Nursery Programmes in Schools**

Respondents were asked to indicate if the tree nursery programme was operational. Responses are shown in Table 4.6

**Table 4.6: Operational School Tree Nursery Programme**

| Category   | Frequency | Percentage |
|------------|-----------|------------|
| Yes        | 45        | 71.4       |
| No         | 18        | 28.6       |
| Don't know | 0         | 0          |
| Total      | 70        | 100        |

Table 4.6 shows that most of the schools had indeed embarked on the tree nursery programmes with above 71 % of the respondents indicating that tree nursery programmes were operational.

#### **4.4.2 Response As To Whether the Tree Nursery Programme Is Performing Well**

Respondents were asked if they agree that the tree nursery programme was performing well in their respective schools. The responses are shown in Table 4.7

**Table 4.7: Response As To Whether the Tree Nursery Programme Is Performing Well**

| Category          | Frequency | Percentage |
|-------------------|-----------|------------|
| Strongly agree    | 0         | 0          |
| Agree             | 22        | 34.9       |
| Neutral           | 15        | 23.8       |
| Disagree          | 21        | 33.3       |
| Strongly disagree | 5         | 7.9        |
| Total             | 63        | 100        |

Table 4.7 shows that 41.2% of the respondents cumulatively disagreed that the tree nursery programmes were performing well, 34.9% agree that indeed the tree nursery programmes were performing well in their schools, while 23.8% neither agreed nor disagreed as they remained neutral to the question. This implies that the tree nursery programmes were generally operational but below expected level.

#### **4.4.3 Range of Seedlings Grown in the Tree Programme**

Respondents were asked to indicate the range of seedlings grown in their school nursery programme. Responses are shown in Table 4.8

**Table 4.8: Range of Seedlings Grown in the Programme**

| <b>Category</b> | <b>Frequency</b> | <b>Percentage</b> |
|-----------------|------------------|-------------------|
| No response     | 16               | 25.4              |
| 1-2             | 13               | 20.6              |
| 3-4             | 19               | 30.2              |
| 5-6             | 14               | 22.2              |
| 7 and above     | 1                | 1.6               |
| <b>Total</b>    | <b>63</b>        | <b>100</b>        |

30.2% of the respondents indicated they grow 3 to 4 varieties of seedlings. 22.2% of the respondents grew 5 to 6 varieties of seedlings, 20.6% of the respondents grew 1 to 2 varieties of seedlings, and 1.6% of the respondents grew 7 and above varieties of seedlings and 25.4% of the respondents did not respond to the question. This implies that majority of the schools grew a variety of seedlings and therefore had potential of meeting the varied needs of different buyers within the community hence leading sustainability.

## 4.5 Community Participation and Sustainable Tree Planting Programmes

To address the first objective that sought to assess the influence of community participation in sustainability of tree nursery programme in Schools in Kinangop Constituency Nyandarua County, the respondents were asked questions on how they rated community participation in the tree nursery programme, attendance to meetings, their level of publicity, and participation in buying and selling of tree seedlings.

### 4.5.1 Rating of overall Community Participation on Tree Nursery Programmes

Table 4.9 shows the rating of the overall level of schools community participation in tree nursery programmes in Schools.

**Table 4.9: Rating of overall Community Participation on Tree Nursery Programme in Schools**

| Category   | Frequency | Percentage |
|------------|-----------|------------|
| Not at all | 13        | 20.6       |
| Low        | 19        | 30.2       |
| Moderate   | 15        | 23.8       |
| High       | 16        | 25.4       |
| Very high  | 0         | 0          |
| Total      | 63        | 100        |

Table 4.9 indicates that majority of the respondents rated the level of school community participation in the tree nursery programmes in schools in Kinangop Constituency to be generally low with only 25.4% of the respondents rated it to be high. This indicated that majority of school community members did not participate in the tree nursery programme.

#### **4.5.2 Attendance of Meetings to Discuss the Tree Nursery Programme in the School**

Respondents were asked to indicate if they had ever attended any meeting to discuss tree nursery programmes in their school. Responses are shown in Table 4.10

**Table 4.10: Attendance of Meetings to Discuss the Tree Nursery Programme in the School**

| Category | Frequency | Percentage |
|----------|-----------|------------|
| Yes      | 29        | 46.0       |
| No       | 34        | 54.0       |
| Total    | 63        | 100        |

Table 4.10 indicates that community participation through attendance of crucial meetings in their school to discuss tree nursery programme was generally low.

#### **4.5.3 Frequency of attending Meetings to discuss tree nursery programme**

Table 4.11 shows the frequency of attending meetings to discuss tree nursery programmes in schools

**Table 4.11: Frequency of attending Meetings to discuss tree nursery programmes**

| Category           | Frequency | Percentage |
|--------------------|-----------|------------|
| No response        | 9         | 14.3       |
| Not at all         | 25        | 39.7       |
| Rarely             | 19        | 30.2       |
| Somehow frequently | 6         | 9.5        |
| Frequently         | 4         | 6.3        |
| Very frequently    | 0         | 0          |
| Total              | 63        | 100        |

Table 4.11 shows that 70% of the respondents cumulatively had rarely attended meetings to discuss tree nursery programmes in their schools. This implies that there was limited community participation in discussions on tree planting programmes due to low numbers attending to meetings.

#### **4.5.4 Publicizing the Tree Seedlings to the Local Community and schools**

Table 4.12 show data on participation of respondents in publicizing the tree seedlings to the local community and schools.

**Table 4.12: Participation in publicizing of the tree seedlings to local community and schools**

| Category | Frequency | Percentage |
|----------|-----------|------------|
| Yes      | 27        | 42.8       |
| No       | 36        | 57.2       |
| Total    | 63        | 100        |

Table 4.12 indicates that majority of the respondents did not publicize the tree seedlings to the local community and neighbouring schools hence showing limited level of participation.

#### **4.5.5 Level of Publicity of Tree Seedlings**

Table 4.13 shows data of the respondents rating on the level of publicity of tree seedlings to neighboring schools and community.

**Table 4.13: Level of Publicity of Tree Seedlings to neighbouring community and schools**

| Category    | Frequency | Percentage |
|-------------|-----------|------------|
| No response | 13        | 20.6       |
| Very poor   | 9         | 14.3       |
| Poor        | 21        | 33.3       |
| Fair        | 17        | 27.0       |
| Good        | 3         | 4.8        |
| Total       | 63        | 100        |

Table 4.13 indicates that the level of publicity of tree nursery programmes to the neighbouring schools and community was poor with about 48% rating it to be generally poor while only a 4.8% rated it to be good while 20.6% of the respondents did not respond to the questions.

#### **4.5.6 Participated in Buying and Selling Seedlings**

Table 4.14 shows data on respondent's participation in buying and selling the seedlings from their school tree nursery.

**Table 4.14: Participated in Buying and Selling Seedlings**

| <b>Category</b> | <b>Frequency</b> | <b>Percentage</b> |
|-----------------|------------------|-------------------|
| Don't know      | 11               | 17.5              |
| Never           | 28               | 44.4              |
| Rarely          | 15               | 23.8              |
| Often           | 7                | 11.1              |
| Quite often     | 2                | 3.2               |
| Total           | 63               | 100               |

Table 4.14 indicates community participation in buying and selling of seedlings was very low with 68.2 % never or rarely participated while only around 14% often participated in buying and selling.

#### **4.6 Training on the Nursery Management**

To address the second objective that sought to establish the influence of training on tree nursery management on the sustainability of tree nursery programmes in Kinangop Constituency in Nyandarua County, the respondents were asked whether they were ever trained and how frequently they attended training programmes on tree nursery management. They were also

asked to give their opinion on whether the training was relevant and whether they agreed that indeed training influenced the sustainability of tree nursery programmes in schools.

#### **4.6.1 Training on Tree Nursery Management**

Respondents were asked to indicate if they had been trained on tree nursery management. Their responses are shown in Table 4.15.

**Table 4.15: Training on Tree Nursery Management**

| <b>Category</b> | <b>Frequency</b> | <b>Percentage</b> |
|-----------------|------------------|-------------------|
| Yes             | 14               | 22.2              |
| No              | 49               | 77.8              |
| Total           | 63               | 100               |

Table 4.15 indicates that training of the programme teams on tree nursery management was generally low with 77.8% of respondents having not been trained. This could have affected their ability to manage tree programmes effectively hence sustainability.

#### **4.6.2 Frequency of Attending Training programs on Tree Nursery Management**

Table 4.16 present data on the frequency of attending training programs on tree management.

**Table 4.16: Frequency of Attending Training programs on Tree nursery Management.**

| Category           | Frequency | Percentage |
|--------------------|-----------|------------|
| No response        | 14        | 22.2       |
| Not at all         | 32        | 50.8       |
| Rarely             | 15        | 23.8       |
| Somehow frequently | 2         | 3.2        |
| Frequently         | 0         | 0          |
| Very frequently    | 0         | 0          |
| Total              | 63        | 100        |

Table 4.16 indicates that cumulatively, 74.6% of the respondents rarely attended training programs on tree nursery management. Low attendance to training programmes could be attributed to low priorities given by school managers on tree planting programme.

#### **4.6.3 Relevance of the Training**

Respondents were asked to indicate if the training had been relevant. Their responses are shown in Table 4.17.

**Table 4.17: Relevance of the Training**

| Category         | Frequency | Percentage |
|------------------|-----------|------------|
| No response      | 9         | 14.3       |
| Not applicable   | 37        | 58.7       |
| Not relevant     | 4         | 6.3        |
| Somehow relevant | 3         | 4.8        |
| Relevant         | 9         | 14.3       |
| Very relevant    | 1         | 1.6        |
| Total            | 63        | 100        |

Table 4.17 showed that 65% of the respondents cumulatively indicated that the training was not applicable or relevant. This implies that the programme teams might not have been equipped with requisite skills to manage the tree nurseries hence reducing the level of sustainability.

#### **4.6.4 Influence of Training on Tree Management on the Sustainability of Tree Nursery Programmes**

Respondents were asked if they agreed that training on tree management influences sustainability of tree nursery programmes in the school. Their responses are shown Table 4.18.

**Table 4.18: Influence of Training on Tree Management on the Sustainability of Tree Nursery Programmes**

| Category       | Frequency | Percentage |
|----------------|-----------|------------|
| No response    | 9         | 14.3       |
| Don't agree    | 13        | 20.6       |
| Neutral        | 3         | 4.8        |
| Agree          | 24        | 38.1       |
| Somehow agree  | 6         | 9.5        |
| Strongly agree | 8         | 12.7       |
| Total          | 63        | 100        |

From Table 4.18 indicates that 60.3% of the respondents cumulatively agreed with the statement that training on tree nursery management had an influence on sustainability of tree nursery programmes in schools.

#### **4.7 Financial Administration Practices**

To address the third objective that sought to determine how financial administration practices influenced sustainability of tree planting programmes in Kinangop Constituency Nyandarua County, the respondents were asked questions on who was handling programme funds, whether they had opened accounts for tree nursery programme and how regularly they deposited funds in those accounts. They were also asked whether they maintained financial records and how often they updated them and whether financial sub-committees were in place and how often they met.

#### 4.7.1 Funds Handling from Tree Nursery Programmes

Respondents were asked who handles funds from the tree nursery programmes in their school. Responses are presented in Table 4.19

**Table 4.19: Funds Handling From Tree Nursery Programmes**

| Category         | Frequency | Percentage |
|------------------|-----------|------------|
| No response      | 9         | 14.3       |
| Don't know       | 22        | 34.9       |
| Committee member | 9         | 14.3       |
| Secretary        | 10        | 15.9       |
| Treasurer        | 9         | 14.3       |
| Chairman         | 6         | 9.5        |
| Total            | 63        | 100        |

Table 4.19 indicates that 54% of the respondents cumulatively indicated that funds were handled by different individuals ranging from committee members, secretary, treasurer and even the chairman while around 35 % of the respondents had no idea on who handled the tree programme funds, an indication of un coordinated handling of project finances.

#### 4.7.2 Account Opened for Tree Nursery Programme

Respondents were asked if they had opened an account for tree nursery programme. Results are presented in Table 4.20.

**Table 4.20: Account Opened for Tree Nursery Programme**

| Category | Frequency | Percentage |
|----------|-----------|------------|
| Yes      | 43        | 68.3       |
| No       | 20        | 31.7       |
| Total    | 63        | 100        |

68.3% of the respondents indicated that indeed they had opened an account for the tree nursery programmes while as 31.7% of the respondents said they had not opened an account.

#### **4.7.3 Regular Deposits of Money from Sale of Seedlings**

Respondents were asked if they did regular deposits of money from the sale of seedlings. The responses are presented in Table 4.21.

**Table 4.21: Regular Deposits of Money from Sale of Seedlings**

| Category          | Frequency | Percentage |
|-------------------|-----------|------------|
| No response       | 6         | 9.5        |
| Not at all        | 40        | 63.5       |
| Irregularly       | 11        | 17.5       |
| Somehow regularly | 3         | 4.8        |
| Regularly         | 2         | 3.2        |
| Very regularly    | 1         | 1.6        |
| Total             | 63        | 100        |

Table 4.21 indicates that most school did not make deposits from sales of tree seedlings with 63.5% of the respondents indicating that they did not make any deposit. This implies that most schools did not create revolving funds in their accounts through regular cash deposits hence affecting sustainability of the tree nursery programme.

#### **4.7.4 Presence of Financial Records on Tree Nursery Programmes**

Respondents were asked if there were financial records on tree nursery programmes in their school. The results are presented in Table 4.22.

**Table 4.22: Presence of Financial Records on Tree Nursery Programmes**

| <b>Category</b> | <b>Frequency</b> | <b>Percentage</b> |
|-----------------|------------------|-------------------|
| Yes             | 38               | 61.3              |
| No              | 25               | 38.7              |
| Total           | 63               | 100               |

61.3% of the respondents said that indeed they had financial records on tree nursery programmes in their school while as 38.7% of the respondents said they did not.

#### **4.7.5 Updating of Financial Records**

Respondents were asked how often they updated their financial records. The results are shown in Table 4.23.

**Table 4.23: Updating of Financial Records**

| Category    | Frequency | Percentage |
|-------------|-----------|------------|
| No response | 10        | 15.9       |
| Don't know  | 16        | 25.4       |
| Never       | 13        | 20.6       |
| Rarely      | 16        | 25.4       |
| Often       | 6         | 9.5        |
| Quite often | 2         | 3.2        |
| Total       | 63        | 100        |

Table 4.23 shows that majority of the respondents did not update their financial records with 71.4% cumulatively indicating that they rarely updated the records. 12.7% of the respondents said they updated their financial records often with 3.2% of the respondents saying they did so quite often.

#### **4.7.6 Financial Subcommittee for Tree Nursery Programmes**

Respondents were asked if they had a financial subcommittee for the tree nursery programmes. The results are presented in Table 4.24.

**Table 4.24: Financial Subcommittee for Tree Nursery Programmes**

| Category | Frequency | Percentage |
|----------|-----------|------------|
| Yes      | 30        | 47.6       |
| No       | 33        | 52.4       |
| Total    | 63        | 100        |

Table 4.24 indicates that 52.4% of the respondents said there was no financial subcommittee for the tree nursery programmes while as 47.6% of the respondents said there was financial subcommittee for the tree nursery programme.

#### **4.7.7 Frequency of Meetings of the Financial Subcommittee Members**

Respondents were asked how regularly the financial subcommittee members met to discuss the financial performance of the tree nursery programmes. Results are presented in Table 4.25.

**Table 4.25: Frequency of Meetings of the Financial Subcommittee Members**

| Category          | Frequency | Percentage |
|-------------------|-----------|------------|
| No response       | 15        | 23.8       |
| Not at all        | 22        | 34.9       |
| Irregularly       | 8         | 12.7       |
| Somehow regularly | 9         | 14.3       |
| Regularly         | 9         | 9.5        |
| Very regularly    | 3         | 4.8        |
| Total             | 63        | 100        |

34.9% of the respondents indicated that the financial subcommittee members did not meet at all, 14.3% of the respondents said they met somehow regularly, 12.7% of the respondents indicated they had irregular meetings, 9.5% of the respondents indicated the financial subcommittee met regularly and 4.8% of the respondents said they met very regularly. 23.8% of the respondents did not respond to the question. It seems only the head teacher handled the money since only around 20% of the sub committees met regularly or somehow regularly.

#### **4.7.8 How Money from Sales of Seedlings is spent**

Respondents were asked how they spent money from sale of seedlings. The results of the responses are shown in Table 4.26

**Table 4.26: How Money from Sales of Seedlings is spent**

| <b>Category</b>                            | <b>Frequency</b> | <b>Percentage</b> |
|--------------------------------------------|------------------|-------------------|
| Don't know                                 | 27               | 42.9              |
| Paying allowances for committee members    | 4                | 6.3               |
| Paying school debts                        | 3                | 4.8               |
| Buying exercise books                      | 7                | 11.1              |
| Buying extra seed and other nursery inputs | 22               | 34.9              |
| <b>Total</b>                               | <b>63</b>        | <b>100</b>        |

Table 4.26 shows that 34.9% of the respondents indicated they spent the money they got from the sales of seedlings on buying extra seeds and other nursery inputs, 11.1% of the respondents spent the money on buying exercise books, 6.3% of the respondents spent the money on paying allowances for committee members and 4.8% of the respondents spent the money on paying school debts. 42.9% of the respondents did not know. It seems only 34.9% of the money from

sales of tree seedlings was spent on items with high multiplier effects on the tree nursery programmes hence affecting their sustainability.

#### **4.7.9 Influence of Financial Practices on Sustainability of Tree Nursery Programmes**

Respondents were asked if they agreed with the statement that financial practices influences sustainability of tree nursery programmes in their school. The results of the responses are shown in Table 4.27.

**Table 4.27: Influence of Financial Practices on Sustainability of Tree Nursery Programmes**

| <b>Category</b>   | <b>Frequency</b> | <b>Percentage</b> |
|-------------------|------------------|-------------------|
| No response       | 3                | 4.8               |
| Don't know        | 12               | 19.0              |
| Disagree          | 13               | 20.6              |
| Strongly disagree | 10               | 15.9              |
| Agree             | 19               | 30.2              |
| Strongly agree    | 6                | 9.5               |
| <b>Total</b>      | <b>63</b>        | <b>100</b>        |

Table 4.27 indicates that 39.7% of the respondents agreed with the statement that financial practices influence the sustainability of tree nursery programmes in their school out of this 9.5% of the respondents strongly agreed. 36.5% of the respondents disagreed with the statement that financial practices influences sustainability of tree nursery programmes with 15.9% of the respondents strongly disagreeing. 19.0% of the respondents did not know while as 4.8% of the respondents did not answer the question.

## 4.8 Marketing Strategies and Sustainability of Tree Planting Programmes

To address the fourth objective that sought to establish how marketing strategies influence the sustainability of tree nursery programmes in schools in Kinangop Constituency Nyandarua County, the respondents were asked to give the percentages of seedlings that survived for sale, methods that were frequently used to market tree seedlings, average selling prices of the seedlings and whether they agreed that the prices set influenced marketing of tree seedlings. They were also asked whether they made profits from sale of seedlings and to indicate the level of competition and also whether they agreed that marketing strongly influenced sustainability of tree nursery programmes in their schools.

### 4.8.1 Percentage of Seedling that Survived for Sale

Respondents were asked what percentage of seedlings survived for sale from the school nursery. The results are shown in Table 4.28.

**Table 4.28: Percentage of Seedling that Survived for Sale**

| Category       | Frequency | Percentage |
|----------------|-----------|------------|
| Not applicable | 6         | 9.5        |
| 76% to 100%    | 3         | 4.8        |
| 51% to 75%     | 13        | 20.6       |
| 20% to 50%     | 17        | 27.0       |
| Less than 20%  | 23        | 36.5       |
| Total          | 63        | 100        |

Table 4.30 indicates that survival rate was low with 63.5 % of seedlings having a survival rate of 50% and below while only 25.4% had over 50% survival rate for sale.

#### **4.8.2 Sale of Seedlings from the Tree Nursery Programme**

Respondents were asked if they had been selling seedlings from their tree nursery programme. The results are presented in Table 4.29.

**Table 4.29: Sale of Seedlings from the Tree Nursery Programme**

| <b>Category</b> | <b>Frequency</b> | <b>Percentage</b> |
|-----------------|------------------|-------------------|
| Yes             | 27               | 42.8              |
| No              | 36               | 57.2              |
| Total           | 63               | 100               |

Table 4.29 shows that 57.2% of the respondents had not been selling seedlings from the tree nursery programme while as 42.8% of the respondents had been selling seedlings from the tree nursery programme.

#### **4.8.3 Methods that were frequently used to Market Tree Seedlings**

##### **4.8.3.1 Marketing by Word of Mouth**

Respondents were asked to rate the frequency of use of word of mouth to market tree seedlings. The results of the responses are indicated in Table 4.30.

**Table 4.30: Marketing by Word of Mouth**

| Category         | Frequency | Percentage |
|------------------|-----------|------------|
| No response      | 10        | 15.9       |
| Not at all       | 24        | 38.1       |
| Somehow frequent | 0         | 0          |
| Least frequent   | 11        | 17.5       |
| Frequent         | 1         | 1.6        |
| Most frequent    | 17        | 27.0       |
| Total            | 63        | 100        |

Table 4.30 shows that 55% of the respondents cumulatively did not use the word of mouth to market tree seedlings.

#### **4.8.3.2 Marketing During Parent Meeting**

Respondents were asked to indicate the frequency of marketing of sale of tree seedlings during parent meetings. Results are shown in Table 4.31.

**Table 4.31: Marketing During Parent Meeting**

| Category         | Frequency | Percentage |
|------------------|-----------|------------|
| No response      | 14        | 22.2       |
| Not at all       | 20        | 31.7       |
| Least frequent   | 13        | 20.6       |
| Somehow frequent | 1         | 1.6        |
| Frequent         | 7         | 11.1       |
| Most frequent    | 8         | 12.7       |
| Total            | 63        | 100        |

Table 4.31 shows that 52.3% of the respondents cumulatively indicated that they least marketed the tree seedlings during parent meetings while 25.4% of the respondents frequently did.

#### **4.8.3.3 Marketing During Chief Barazas**

Respondents were asked to indicate the frequency of marketing of sale of tree seedlings during chief barazas. Results of responses are shown Table 4.32.

**Table 4.32: Marketing Chief Barazas**

| Category            | Frequency | Percentage |
|---------------------|-----------|------------|
| No response         | 18        | 28.6       |
| Not at all          | 33        | 52.4       |
| Least frequent      | 8         | 12.7       |
| Somewhat frequently | 3         | 4.8        |
| Frequent            | 0         | 0          |
| Most frequent       | 1         | 1.6        |
| Total               | 63        | 100        |

Table 4.32 shows that cumulatively 65.1% of the respondents least marketed the tree seedlings during chief's barazas.

#### **4.8.3.4 Marketing through Churches**

Respondents were asked to indicate the frequency of marketing of sale of tree seedlings in church. Results are presented in Table 4.33.

**Table 4.33: Marketing Through Churches**

| Category            | Frequency | Percentage |
|---------------------|-----------|------------|
| No response         | 17        | 27.0       |
| Not at all          | 36        | 57.1       |
| Least frequent      | 5         | 7.9        |
| Somewhat frequently | 4         | 6.3        |
| Frequent            | 0         | 0          |
| Most frequent       | 1         | 1.6        |
| Total               | 63        | 100        |

Table 4.33 reveals that 57.1% of the respondents did not at all market the tree seedlings in the church, 7.9% of the respondents did so least frequently. 7.9% of the respondents did so frequently and 27.0% of the respondents did not answer the question.

#### **4.8.3.5 Marketing Through Use of Poster**

Respondents were asked to indicate the frequency of marketing of sale of tree seedlings via use of posters. Results are presented in Table 4.34.

**Table 4.34:Marketing Through Use of Poster**

| Category            | Frequency | Percentage |
|---------------------|-----------|------------|
| No response         | 18        | 28.6       |
| Not at all          | 40        | 63.5       |
| Least frequent      | 5         | 7.9        |
| Somewhat frequently | 0         | 0          |
| Frequent            | 0         | 0          |
| Most frequent       | 0         | 0          |
| Total               | 63        | 100        |

Table 4.34 shows that 63.5% of the respondents did not market the seedlings using posters, 7.9% of the respondents did so least frequently and none of the respondents frequently used posters to market the tree seedlings. 28.6% of respondents did not answer the question.

#### **4.8.4 Average Selling Price per Seedling**

Table 4.35 gives data on the average selling price per seedling.

**Table 4.35: Average Selling Price per Seedling**

| Category           | Frequency | Percentage |
|--------------------|-----------|------------|
| No response        | 26        | 41.3       |
| 1 Kshs to 5 Kshs   | 24        | 38.1       |
| 6 Kshs to 10 Kshs  | 10        | 15.9       |
| 11 Kshs to 20 Kshs | 3         | 4.8        |
| Above 20Kshs       | 0         | 0          |
| Total              | 63        | 100        |

Table 3.35 shows that cumulatively 54% of the seedlings were sold on average for less than 10 shillings per seedling indicating that average prices were relatively low.

#### **4.8.5 Profits from Sale of Seedlings**

Respondents were asked if they made any profit from sale of seedlings from the tree nursery programme. Results are presented in Table 4.36.

**Table 4.36: Profits from Sale of Seedlings**

| Category  | Frequency | Percentage |
|-----------|-----------|------------|
| Never     | 30        | 47.6       |
| Rarely    | 20        | 31.7       |
| Sometimes | 13        | 20.6       |
| Always    | 0         | 0          |
| Total     | 63        | 100        |

Table 4.36 shows that 79.3% of the respondent cumulatively indicated they rarely made profits from sale of seedlings from the tree nursery programme. This implies that the proceeds could hardly sustain of the nursery programme.

#### **4.8.6 Level of competition from Other Tree Nursery Owners**

Table 4.37 shows data on the level of competition from other tree nursery owners.

**Table 4.37: Level of competition from Other Tree Nursery Owners**

| Category    | Frequency | Percentage |
|-------------|-----------|------------|
| No response | 3         | 4.8        |
| Very low    | 16        | 25.4       |
| Low         | 10        | 25.9       |
| Moderate    | 14        | 22.2       |
| High        | 10        | 15.9       |
| Very high   | 10        | 15.9       |
| Total       | 63        | 100        |

Table 4.37 indicates that 51.3% of the respondents said that the level of competition from other tree nursery owners was low, 31.8% of respondents indicated the level of competition was high and 22.2% of the respondents indicated the level of competition was moderate. 4.8% of the respondents did not answer the question.

#### **4.8.7 Influence of Marketing on Sustainability of Tree Nursery Programmes**

Respondents were asked if they agreed with the statement that marketing influences sustainability of tree nursery programmes in their school. Results of the responses are presented in Table 4.38.

**Table 4.38: Influence of Marketing on Sustainability of Tree Nursery Programme**

| Category          | Frequency | Percentage |
|-------------------|-----------|------------|
| No response       | 8         | 12.7       |
| Neutral           | 9         | 14.3       |
| Disagree          | 4         | 6.3        |
| Strongly disagree | 7         | 11.1       |
| Agree             | 32        | 50.8       |
| Strongly agree    | 3         | 4.8        |
| Total             | 63        | 100        |

Table 4.38 indicates that 55.6% of the respondents cumulatively agreed that marketing influenced the sustainability of tree nursery programmes in their school. This implies that the methods used to market the tree seedlings affected the general performance of the tree programmes hence sustainability.

#### **4.9 Summary**

The chapter discussed the main results obtained by analysis of data and presentation of the same. The results are on the factors influencing sustainability of tree nursery programmes in Kinangop constituency, Nyandarua County Kenya. The report is based on responses from the study variables of community participation, training of programme teams, financial administration practices and marketing strategies employed to market the tree seedlings. Presentation of the finding was mainly in the form of tables and frequencies followed by a brief discussion.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, DISCUSSION, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents a summary of the major findings from the results of the study and discussed these findings against what is known on the subject matter from literature. It then offers conclusions based on the discussions and finally present relevant recommendations.

#### **5.2 Summary of the Finding**

##### **5.2.1 Influence of community participation in the sustainability of tree nursery programmes in Kinangop Constituency, Nyandarua County**

The study established that there was limited community participation which had an influence in the sustainability of tree nursery programmes in Kinangop Constituency. This was characterized by minimal level of meeting attendance with 51% of the respondent rating participation as low and 54% indicated that they never attended any meeting while 68% indicated that they never participated in buying and selling of tree seedlings. At the same time, 57.2% of the respondents did not participate in publicizing the tree seedlings to neighbouring schools and community while 48% rated publicity as poor.

##### **5.2.2 Influence of training in sustainability of tree nursery programmes in Kinangop Constituency.**

The study revealed that there was limited training on tree nursery management which had an influence in the sustainability of tree nursery programmes in Schools in Kinangop Constituency. This is attested by the fact that 77.8% of the respondents never attended any training and the frequency of attendance to training programmes was very low. A total of 65% of those who attended the training indicated that the training was not relevant or applicable to the sustainability of tree nursery programmes.

### **5.2.3 Influence of financial administration practices in the sustainability of tree nursery programmes in Kinangop Constituency.**

The study shows that while 61.3% of the respondents indicated that they kept financial records on tree nursery programmes, cumulatively 71.4% rarely or never updated these records. 34% had no idea on who handled the tree programme funds while 54% of the respondents indicate that funds were handled by different individuals, 63.5% of the respondents indicating that they did not make any deposit from proceeds from sales of tree seedlings. The study therefore established that there were inefficient financial management practices in most schools which negatively influenced the sustainability of tree nursery programmes in Schools in Kinangop Constituency

### **5.2.4 Influence of marketing strategies on the sustainability of tree nursery programmes in Kinangop Constituency.**

The study revealed that 57.2% of the respondents were not selling seedlings from the tree nursery programme. Minimal marketing of seedlings was done, with 55% of the respondents cumulatively indicating that they did not use the word of mouth and cumulatively 65.1% least marketed during chief's barazas while 63.5% did not use posters. Cumulatively, 54% of the seedlings were sold on an average price of less than 10 shillings per seedling indicating that prices were relatively low which affected profitability with 79.3% of the respondents indicating that they rarely made profits. Thus the study established that the marketing strategies employed were not effective, hence affected the sustainability of the tree nursery programmes in Schools in Kinangop constituency

## **5.3 Discussion of findings**

In this section, the study sought to discuss the research findings based on the four research objectives and subjecting these findings to literature and further concluding on each of them.

### **5.3.1 Influence of community participation on sustainability of tree nursery programmes in schools in Kinangop Constituency.**

The study indicates that majority of the community members never attended meetings to discuss the tree nursery programmes and those who attended, only a very small portion attended frequently. Further, majority did not participate in the publicity of tree seedlings to the neighbouring schools and communities. Likewise there was limited community participation in buying or selling of tree seedlings. The study thus reveals that generally the community participation in tree nursery programmes in Kinangop constituency was minimal. According to Kaplan and Kaplan (1989) success of programmes and programs in a community depends on the level of involvement and their participation. This finding is also supported by (Sims and Sinclair, 2008) who states that participation in management of programmes can further be used instrumentally to improve tree nursery programme outcomes, remove or ease conflict, increase acceptance, and achieve greater sustainability of the programme besides expectation of reducing vandalism. If the community actively participated in the tree nursery programmes the programmes would probably have been more sustainable and rewarding in terms of returns.

### **5.3.2 Influence of training of the programme team on sustainability of tree nursery programmes in schools in Kinangop Constituency, Nyandarua County.**

The study reveals that there was limited training on tree nursery management which had a negative influence in the sustainability of tree nursery programmes. This was attested by the fact that majority of the respondents never attended any training and the frequency of attendance to training programmes was very low among those who did. Further training provided was indicated as not being relevant or applicable to sustainability of tree nursery programmes. The study finding on trainings are supported by Mailuma *et al.*, (2006) who avers that training improves performance and enables participants acquire new skills for improved performance and consistency of output. The findings are also supported by Kraiger *et al.*, (2004) who mentions that training efforts produce improvements in the quality of output which is one of the contributors to economic growth. Relevance of a training programme on tree planting is supported by Simon, (1996) who mentions that training should focus on tree seeds and seedlings relevant to specific geographical location, soil type and on nursery establishment and care. This

therefore indicates that if proper training was conducted to the tree nursery managers' general performance would have been achieved hence sustainability of the programmes.

### **5.3.3 Influence of financial management practices influences sustainability of tree nursery programmes in schools within Kinangop Constituency, Nyandarua County.**

The study reveals that there was poor the financial management practices. This was shown by the fact that diverse individuals in the various institutions handled the funds from the tree nursery programme and that majority did not maintain proper financial records, an indication of lack of competencies and skills in financial management. According to South, (1990) prudent financial management practices is a prerequisite for proper management and implementation of tree nursery and planting programmes. This is supported by Ajayi, (2002) who avers that sound financial management skills are essential to operate an economically successful nursery business. Besides, Fridson and Alvarez, (2011) mentions that programme leaders and managers should be equipped with basic skills in financial management starting with the critical areas of cash management and bookkeeping. This should be done according to certain financial controls to ensure integrity in the bookkeeping process. They should also learn how to generate financial statements and analyze those statements to really understand the financial conditions of the programmes.

### **5.3.4 Influence of marketing strategies on the sustainability of tree nursery programmes in schools in Kinangop Constituency, Nyandarua County.**

The study reveals that the marketing strategies that were employed were not effective hence affected the sustainability of the tree nursery programmes in Kinangop constituency. Minimal marketing was done through word of mouth, during parents meetings in schools, chief's barazas and through posters. According to Nicholson (2001) appropriate marketing and networking strategy leads to increased sales, distributions of tree seedlings and increased cost effectiveness and sales turn over. Unfortunately, due to ineffective and limited marketing strategies most of the tree nursery programme in schools in Kinangop constituency were not profitable hence affecting the sustainability of the programmes.

## **5.4 Conclusions**

In conclusion, limited community participation in the tree nursery programmes in schools in Kinangop Constituency and limited training of programme teams could have negatively influenced the sustainability of the tree nursery programmes in the schools. Further, financial administration practices witnessed in the tree nursery programmes and the limited marketing strategies also affected the capacity of the tree nursery programmes to generate profits for re-investment and hence self-sustainability.

## **5.5 Recommendations of the study**

The following are the recommendations of the study:

1. To enhance community participation in the tree nursery programmes in schools, the government through relevant agencies like forest department, ministry of education and other stakeholders should sensitize, train and educate the community on the importance of participating in the tree nursery programmes.
2. Adequate and relevant training on tree nursery and management techniques should be provided to the community, teachers and students in all school before similar programmes are initiated in future.
3. The programme teams should also be trained on proper financial administration practices in order to prevent misuse and misappropriation of programme funds. The training should coordinate by the forestry department and other relevant government agencies and private bodies.
4. School Board of Management should develop appropriate marketing strategies to ensure the success and sustainability of the tree nursery programmes in their schools.

## **5.6 Areas of Further Study**

**The following is recommended for further study:**

1. Strategies and mechanisms for sustainable tree planting programmes are in schools.
2. Factors influencing tree planting programmes in schools in other counties to check for consistence of results and outcomes.

## **5.7 Summary**

This research project report has discussed the factors influencing sustainability of tree nursery programmes in Kinangop Constituency Nyandarua County. It has also discussed the influence of community participation, training of management teams, financial administration practices and marketing strategies on sustainability of tree planting programmes. Research findings, discussions, conclusions and recommendations have been given and areas of further research highlighted.

## REFERENCES

- Aalbæk, A. (1997). *Farmers' tree planting and the role of national tree seed centers: A case study from Tanzania (Lecture note)*. Danish Forestry and Extension, 1998. Marketing Training Course and Monitoring Mission.
- Agarwal B (1994). *A field of one's own: Gender and land rights in South Asia*. Cambridge: Cambridge University Press
- Agea, J. G., Obua, J., Kaboggoza, J. R., & Waiswa, D. (2007). Diversity of indigenous fruit trees in the traditional cotton-millet farming system: the case of Adwari sub county, Lira District, Uganda. *African Journal of Ecology*, 45(s3), 39-43.
- Ajayi, C.A. (2002). *Cost-benefit analysis of seedling production in public enterprises: A case study of NIHORT and FRIN nurseries, Ibadan, Oyo state, Nigeria*. A B.Sc. dissertation submitted to the Department Of Forest Resources Management, University of Ibadan, Ibadan, Nigeria.
- Barker and Bridgeman, (1994). *Woodland Trust, 2002*. Basingstoke and Deane Borough Council, 2011.
- Barker, D. (1994). *Total Quality Management and the Choice of Information and Reward*.
- Basweti C., Lengkeek A., Prytz P. & Jaenicke, H. (2001). *Tree Nursery Trade in Urban and Peri-urban Areas: A survey in Nairobi and Kiambu Districts, Kenya*. RELMA Working paper No 13. Regional Land Management Unit (RELMA): Swedish International Development Cooperation Agency (Sida), Nairobi, Kenya.

- Brager, G. A., Specht, H., & Torczyner, J. L. (1987). *Community organizing*. Columbia University Press.
- Campsey, B. J., Bodil, D., & Eugene, F. B. (1995). *Introduction to Financial Management*. London: Hardcourt Publishers
- Costanza, R., & Patten, B. C. (1995). Defining and predicting sustainability. *Ecological Economics*, 15(3), 193-196.
- David A. Flannery (2005). *Bookkeeping made Simple*. London: Hardcourt Publishers.
- Fact Book, C. I. A. (2011). *CIA World Fact Book*.
- FAO (2005), *Forest resources assessment, 2005: tropical countries*. Rome: FAO Forestry Paper NO.112
- Food and Agriculture Organization (2010). *Global Forest Resources Assessment 2010 Key Findings*. <http://www.fao.org/forestry/fra2010/en/>.
- Fillipo, D. M. (1984). *Problems of defining the public in the context of lifelong education*. International journal of lifelong education, 3(4), 265-277.
- Flannery, T. (2009). *Now Or Never: Why We Must Act Now to End Climate Change and Create a Sustainable Future*. Atlantic Monthly Press.
- Frank, F and Smith, A (1999). *The Community Development Handbook: A Tool to Build Community Capacity*.  
[http://www1.servicecanada.gc.ca/eng/epb/sid/cia/comm\\_deve/handbook.shtml](http://www1.servicecanada.gc.ca/eng/epb/sid/cia/comm_deve/handbook.shtml)
- Fridson, M. S., & Alvarez, F. (2011). *Financial statement analysis: a practitioner's guide* (Vol. 597). Wiley.
- Garavan, T. N., & O'Conneide, B. (1994). *Entrepreneurship Education and Training Programmes: A Review and Evaluation—Part 1*. Journal of European industrial training, Vol 18 Iss: 8 pp. 3-12

- Garcia J. G. and Jayasuriya, S. (1997). *Efficiency of Public Expenditure; Report of World Bank comparative macro-economic studies courting turmoil and differing property: Colombia between 1960 and 1990*.
- Government of the Republic of Kenya, (2007). *Kenya Vision 2030*. Nairobi: Government Press
- Gregersn, H. & Draper, S (1989). *People and Trees. The Role of Social Forestry in Sustainable Development*. World Bank Economic Development Institute.
- Hamburg, S. P. (2000). Simple rules for measuring changes in ecosystem carbon in forestry-offset projects. *Mitigation and Adaptation Strategies for Global Change*, 5(1), 25-37.
- Homburg, Christian; Sabine Kuester, Harley Krohmer (2009): *Marketing Management - A Contemporary Perspective* 1st edition. London: London Publishers
- Kaplan, S., & Kaplan, R. (1989). *The visual environment: Public participation in design and planning*. Journal of Social Issues, 45(1), 59-86.
- Kasomo, D. (2007). *Research Methods in Humanities and Education. Research, Statistics, Measurement, Evaluation and Testing*. Eldoret: Zapf Chancery
- Kathuri, J.N. and D.A. Pals. (1993). *Introduction to Education Research*. Egerton University, Njoro: Education Media Centre.
- Kenya Forest Service, (2012). *Kenya Forest Cover*. Nairobi: Government Printers.
- Kjaer, E.D. & I. Nathan, (2000). *The Models for Integrated Conservation and Development. A Presentation and Discussion Based on the Experience of Danida Forest Seed Centre (DFSC) within Forest Gene Conservation*. Paper presented at the 'Integrating Conservation and Development (ICDP) Workshop', Danida, September 1, 2000.
- Kothari, C, R., (2004). *Research Methodology: Methods and Techniques, 2nd Edition*. New Delhi: New Age International (P) Ltd.

- Kotler, P. & Keller, L. K. (2012). *Marketing Management* 14<sup>th</sup> edition. London: Pearson Publishers Limited.
- Kraiger, K., McLinden, D., & Casper, W. J. (2004). *Collaborative Planning For Training Impact*. *Human Resource Management*, 43(4), 337-351.
- Kroger, M. (2012). *Global tree plantation expansion: a review*. *ICAS Review Paper Series No, 3*.
- Larbi, A., Smith, J. W., Adekunle, I. O., & Kurdi, I. O. (1996). *Studies on multipurpose fodder trees and shrubs in West Africa: variation in determinants of forage quality in Albizia and Paraserianthes species*. *Agroforestry systems review journal*, 33(1), 29-39.
- Mailuma, S.S., Okonkwo, M.C, and Afrika, B.M. 2006: *Socio-economic analysis of tree seedlings production in nurseries: Evidence from Abuja Municipal Area Council, Abuja, Federal Capital Territory (FCT), Nigeria*. In: *Forestry at Cross roads in Nigeria*. Popoola L.(ed) proceedings of the 31st Annual Conference of Forestry Association of Nigeria (FAN) held in Makurdi, Benue state, Nigeria, Nov. 20th – 25th, 2006. pp. 492 – 499.
- Maskey, V., Gebremedhin, T. G., & Dalton, T. J. (2006). *Social and cultural determinants of collective management of community forest in Nepal*. *Journal of forest economics*, 11(4), 261-274.
- McPherson, E. G., Simpson, J. R., Peper, P. J., Gardner, S. L., Vargas, K. E., Maco, S. E., & Xiao, Q. (2006). *Piedmont community tree guide: benefits, costs, and strategic planning*. US Department of Agriculture, Forest Service, Pacific Southwest Research Station.
- McPherson, E. G., Simpson, J. R., Peper, P. J., Scott, K., Xiao, Q. (2000). *Tree Guidelines Auditing program evaluations: The Canadian Case*. *Accounting, Organizations and Society, Journal* 10(4), 493-502.
- Mercado Jr, A. R., & Duque-Piñon, C. (2008). *Tree seedling production systems in Northern Mindanao, Philippines*. *Small-scale Forestry Review Journal* 7(3-4), 225-243.

- Ministry of Education (2009). Guidelines on Tree Planting in Schools. Nairobi: Government Press.
- Moestrup, S. & L. Graudal, (2007). *Sustainability of National Tree Seed Projects/Programs*. Paper presented at the Workshop of African Tree Seed Centers, Madagascar.
- Schreckenber, K., Luttrell, C., &Thassim, L. (2005). Participatory Forest Management and Poverty Reduction: a review of the evidence. Nairobi: Acts Press.
- Mugenda,O.M. &Mugenda, A.G.(1999). *Research Methods, Quantitative & Qualitative Approaches*. Nairobi: Acts Press.
- Nag Chowdhury-Zilly, A. (1989). *Let Grassroots Speak: People's participation, self-help groups, and NGOs in Bangladesh*. Bangladesh: Bangladesh Press
- Nathan, I. K.B. Shrestha, P.K. Iha&Suman, S. (2005). *Commercial distribution of tree seed in small bags - results from a pilot and action research project in Nepal*. Forest & Landscape Working Papers No. 9-2005.
- Nathan, I., (2001). *Organizing tree seed programs with a view to benefiting small farmers and ensuring sustainability: A Case study of the National Tree Seed Programme (NTSP) in Tanzania*. Debriefing note submitted to Danida Forest Seed Centre, December 31, 2001.
- Nicholson, K. (2001). *Consultancy on development of a decentralized market for tree seed including aspects of development of information and marketing, networking of information and awareness raising at different levels of society*. Debriefing note submitted to Danida Forest Seed Centre, December 31, 2001.
- Oakley, P. (1989).Power and Participatory Development: Theory and Practice. ... European Journal of Social Sciences, Volume 11, number 1 [12]
- Oakley, P. (1991). *Projects with people: The practice of participation in rural development*. International Labour Organization.

- Orodho, A. J. (2004). *Techniques of Writing Research Proposals and Reports in Education and Social Sciences (1st Edition)*. Nairobi: Masola Publishers.
- Patrick, J. (1992). *Training Research and Practice*. London: Academic Press.
- Peck, M. Scott.(1998) *The Different Drum: Community Making and Peace*. Touchstone Publishers: New York
- Pfeifer, M., Burgess, N.D.Swetnam, R.D.Platts, P.J, Willcock S. (2012). *Protected Areas: Mixed Success in Conserving East Africa's Evergreen Forests*. PLoS ONE 7 Journal Proceedings of the 31st Annual Conference of Forestry Association of Nigeria (FAN)
- Reid, N., Landsberg, J., Hobbs, R. J., & Yates, C. J. (2000). *Tree decline in agricultural landscapes: what we stand to lose*. Temperate eucalypt woodlands in Australia: Biology, conservation, management and restoration, 127-166.
- Rifkin, S. B. (1986). *Lessons from community participation in health programmes*. *Health Policy and Planning Journal*, 1(3), 240-249.
- Rocheleau, D (1985). *Criteria for re-appraisal and re-design: Intra-household and between household aspect of FSRE in three Kenyan agroforestry projects*. Working Paper no.37. International Council for Research in Agroforestry, Nairobi.
- Simons, A. (1996). *Delivery of Improvement For Agroforestry Trees*. Proceedings of QFRI-IUFRO conference held in Caloundra, Queensland, Australia 27 October–1 November 1996.
- Simons. (1997). *The Importance of Germplasm Policies in Tree Domestication*. Advance Proceedings of the International Workshop on Policy Aspects of Tree Germplasm Demand and Supply organized at ICRAF, Nairobi, Kenya, 6 - 8 October 1997.
- Sims, L., & Sinclair, A. J. (2008). *Learning through participatory resource management programs: Case studies from Costa Rica*. *Adult education quarterly review journal*, 58(2), 151-168.

- South.D. (1990). *Nursery seed efficiency can affect gains from tree improvement*. Proceedings of the Southern Forest Nursery Association Journal, 46-53.
- Steiner, E. D., UNEP, S., Hem Pandey, I. A. S., Joint Secretary, D., Subramanyam, G. V., Advisor, M., ... & Director, N. M. N. H. (2011). World Environment Day 2011-Education Reports. *Magazine of Zoo Outreach Organisation*, 22.
- Ssembajjwe, G. & Banana, Y.A (1998). *Community participation in forest management*. Kampala: Makerere University.
- Stockbridge M, Dorward A, Kydd J, Morrison J, Poole N (2003). *Farmer organization for market access: international review*. Briefing paper, Centre for Development and Poverty Reduction Imperial College, London  
<http://www.wye.ic.ac.uk/AgEcon/ADU/research/projects/farmorg/fosumjul.doc>.
- Swallow B, Garrity D, Noordwijk M (2001). *The effects of scales, flows and filters on property rights and collective action in watershed management*. SP-PRCA working papers no. 16. IFPRI, Washington DC.
- Taylor & Francis (2012). *Supporting Mechanism For Timber Tree Domestication*. Institute of Agro-forestry, College Of Forestry And Natural Resources: University of Philippines Banos College.
- Taylor and Francis (2006). *Smallholders tree nursery operations in South Philippines. Supporting Mechanism for Timber Tree*. Tree Domestication Journal. vol. 16, Issue 1, 2006
- Thomas N. Garavan, Barra O'Cinneide, (1994). *Entrepreneurship Education and Training Programs: A Review and Evaluation – Part 1*. Journal of European Industrial Training, Vol. 18 Iss: 8, pp.3 – 12
- Urgessa, K. (2003). *Perceptions of forest cover and tree planting and ownership in Jimma Zone, Ethiopia*. UNASYLVA-FAO-, 18-20.

- Vaughan, I. P., & Ormerod, S. J. (2003). *Improving the quality of distribution models for conservation by addressing shortcomings in the field collection of training data*. *Conservation Biology*, 17(6), 1601-1611.
- Victor, A. J., & Bakare, Y. (2004). *Rural Livelihood Benefits from Participation in the Taungya Agroforestry System in Ondo State*. Nigeria: *Small-Scale Forest Economics, Manage. Policy*, 3(1), 131-138.
- Westergaard-Nielsen, W. (1986). *Trends and determinants in public employment in Denmark, 1921-1977*. Haveman (ed.), 47-58.
- World Bank (2012). *The World Bank forest strategy: striking the right balance*. World Bank Publications.
- World Bank, (1995). *Lending For Small and Medium Enterprises*, Washington. D.C 200433, U.S.A

## **APPENDICES**

### **APPENDIX 1: LETTER OF INTRODUCTION**

Wanjohi John Kiboi,  
P.O BOX 1953,  
NYERI.

**Dear respondents,**

I am a master's student at the University of Nairobi and collecting data on the factors influencing tree nursery programmes in schools in Kinangop constituency. Your school has been selected to provide desired information.

I would be grateful if you could spare some time and complete the enclosed questionnaire. Your identity will be treated with utmost confidentiality and the information provided will be used purely for the purpose of the study and no other reason whatsoever. Your response will be highly appreciated.

Yours faithfully,

Wanjohi John Kiboi

## **APPENDIX II :QUESTIONNAIRE FOR SCHOOL MANAGEMENT COMMITTEE, HEADTEACHERS AND TEACHERS**

This questionnaire is intended to collect data that will be used in a study to assess the factors influencing the sustainability of tree nursery programmes in schools in Kinangop Constituency Nyandarua County. In answering the questions, please remember that there are no correct or wrong answers. Your honest opinion is the most important. I appreciate your contribution towards this study and look forward to your response. All your responses will be treated in confidence. If you have any questions, please do not hesitate to contact me.

Mark with a tick ( ✓) where applicable or write your response in the space provided.

### **A: General information**

#### **1. Respondent Information**

a) Gender: Female ☐  
Male ☐

b) Age in years: below 30 ☐ 31 – 40 ☐ 41 – 50 ☐ above – 50 ☐

#### **2. Level of education**

Primary level ☐ secondary ☐ certificate ☐ diploma ☐ degree ☐ others---

#### **4. Position held in school**

Chairman ☐ Secretary ☐ Treasurer ☐ D.E.B Member ☐ SMC member ☐  
Teacher ☐

### **B. Tree planting programme**

#### **5. Is your school tree nursery programme operational?**

Yes. ☐ No. ☐ Don't know. ☐

6. Do you agree that the tree nursery programme is performing well in your school?

5=Strongly Agree ☐

4=Agree ☐

3=Neutral ☐

2=Disagree ☐

1=strongly disagree ☐

7. What in your opinion has led to the current status of the tree nursery programme in your school?

Give reasons .....  
.....  
.....

8. Tick according to appropriate range of seedling grown in your programme.

1 – 2 ☐

3- 4 ☐

5- 6 ☐

Above 7 ☐

### **B: Community participation and sustainability of tree planting programmes**

9. How would you rate the overall level of schools community participation in your tree nursery programme?

5=very high ☐

4=high ☐

3=moderate ☐

2=low ☐

1=not at all ☐

10.(i) Have you ever attended any meeting to discuss tree nursery programme in your school?

Yes ☐ No ☐

(ii) If **yes** how often have you been attending those meetings?

5=Very frequently ☐

4=Frequently ☐

3=Somehow frequently ☐

2=Rarely ☐

1=Not at all ☐

11. i) Do you participate in publicizing the tree seedlings to local community? Yes ☐ No ☐

ii) If yes how would you rate the level of publicity of tree seedlings to neighbouring schools and community?

5=Very good ☐

4=Good ☐

3=Fair ☐

2=Poor ☐

1=Very poor ☐

12. Do you ever participated in buying and selling the seedlings from your school tree nursery?

5=Quite often

4= Often ☐

3= Rarely ☐

2= Never ☐

1= Don't know ☐

### C: Training on the nursery management

13. i) Have you been trained on tree nursery management? YES ☐ NO ☐

ii).If yes, how frequently have you been attending training program on tree planting?

5=Very frequently ☐

4=Frequently ☐

3= Somehow frequently ☐

2= Rarely ☐

1= Not at all ☐

14In your opinion has the training been relevant?

5=Very relevant ☐

4=Relevant ☐

3=Somehow relevant ☐

2=Not relevant ☐

1=Not applicable ☐

15. In your opinion do you agree that training on tree management influence sustainability of the tree nursery programme in school?

5=strongly agree ☐

4=Somehow agree ☐

3=Agree ☐

2=Don't know ☐

1=Don't agree ☐

### D: Financial administration practices

16. Who handles the funds from the tree nursery programmes in your school?

5=chairman ☐

4=treasurer ☐

3=secretary ☐

2=committee member ☐

1=Don't know ☐

17. Have you opened an account for tree nursery programme? Yes ☐ No ☐

18. If yes, how regularly do you deposit money from sale of seedlings?

5=Very regularly ☐

4= regularly ☐

3=somehow regularly ☐

2=irregularly ☐

1=not all ☐

19. A) Are there financial records on tree nursery programme in your school? Yes ☐ No ☐

B) If yes how often are they updated?

5=Quite often ☐

4= Often ☐

3= Rarely ☐

2=Never ☐

1= Don't know ☐

20. A) Do you have a financial subcommittee for the tree nursery programme? Yes ☐ NO ☐

B) IF yes, how regularly does it meet to discuss the financial performance of the tree nursery programme?

- 5=Very regularly ☐
- 4= regularly ☐
- 3=somehow regularly ☐
- 2=irregularly ☐
- 1=not all ☐

21. How do you spend money from sale of seedlings?

- 4=buying extra seeds other nursery inputs ☐
- 3=buying exercise books ☐
- 2=paying school debts ☐
- 1=Paying allowances for committee members ☐

22. In your opinion do you agree that financial practices influences sustainability of tree nursery programme in your school?

- 5=strongly agree ☐
- 4=Agree ☐
- 3=strongly disagree ☐
- 2=disagree ☐
- 1=don't know ☐

### **E: Marketing strategies and sustainability of tree planting programmes**

23. What percentage of seedlings survived for sale from your school tree nursery?

- Less than 20% ☐
- 20 - 50% ☐
- 50 - 75% ☐
- 75 - 100% ☐
- Not applicable ☐

24. Have you been selling seedlings from your tree nursery programme? Yes ☐ No ☐

25. In your opinion, which of the following methods have been frequently used to market the tree seedlings?

**(USING A SCALE OF 1 TO 5, RATE THE FOLLOWING METHODS WHERE 5 IS THE MOST FREQUENTLY USED AND 1 NOT AT ALL.)**

|                       | Most<br>Frequent           | Frequent                   | Somehow<br>frequent        | Least<br>frequent          | Not at all                 |
|-----------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Word of mouth         | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |
| During parent meeting | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |
| Chief Barazas         | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |
| Church                | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |
| Posters               | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |

26. What is the average selling price per seedling?

- 1 - 5 shilling ☐
- 5 - 10 shilling ☐
- 10 - 20 shilling ☐
- Above 20 shillings ☐

27. In your opinion, do agree that price set influences marketing of tree seedlings?

- 5=strongly agree ☐
- 4=Agree ☐
- 3=strongly disagree ☐
- 2=disagree ☐

1=don't know

☐

28. Do you make profits from sale of seedlings from your tree nursery programme?

4=Always

☐

3=Sometimes

☐

2=Never

☐

1=Not applicable

☐

29. What is the level of competition from other tree nursery owners?

5=Very high

☐

4=high

☐

3= moderate

☐

2= low

☐

1=very low

☐

30. In your opinion, do agree that Marketing strongly influence sustainability of tree nursery programme in your school?

5=strongly agree

☐

4=Agree

☐

3=strongly disagree

☐

2=disagree

☐

1=don't know

☐

**THANK YOU**