AN ASSESSMENT OF THE IMPACT OF COMMUNITY PARTICIPATION ON SOIL AND WATER CONSERVATION PROJECTS IN LOWER NYAKACH DIVISION, NYAKACH SUB-COUNTY, KENYA.

BY

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DECLARATION

I hereby declare that this thesis is my original work and has not been presented for a degree in any other university.

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DEDICATION

This work is dedicated to my family, my dear spouse Emily, children Boniface, Brian, Booker and the lovely girl Elsie. To my parents and siblings, I say thanks for the support and inspiration you have provided to me ever since.

ABSTRACT

Community participation have become widely incorporated into policies of many soil and water conservation organisations. It is interesting to determine how community participates in soil and water conservation projects as it is perceived that such participation contributes to project success. Whether or not, farmers' socioeconomic factors influence community participation has not received much attention. Little research has been done to assess how community participate and people's perceptions about community participation. Additionally, how people have adopted (SWC) technologies in Lower Nyakach division have not been established by most studies. The objectives of the study were to: identify socio-economic factors that influence community participation in SWC projects; assess local people's perceptions about community participation in projects; assess the adoption of soil and water conservation technologies options by the community; and determine the perceived benefits and challenges of participatory approaches to SWC projects. The study used a descriptive cross-sectional study design. A multistage sampling procedure that combined cluster and systematic sampling was adopted where a total of 384 households from 6290 households in the area of study were sampled for the study. Primary data were collected by using household surveys, key informant interviews, focus group discussions and direct observation. Quantitative data were analyzed using descriptive statistics such as frequencies and percentages. Qualitative data were analyzed by establishing patterns and trends from the information gathered and categorizing them into themes, which was then presented through verbatim quotation. The study found that income levels, source of income and training of beneficiaries influenced participation. Community perceived SWC as a government responsibility. The community perceived participation as beneficial to them as it enabled them exchange ideas with the projects. The study found that most SWC project staff did not have specific training and skills to implement community participation. Participation was majorly 'informing and consultation' perceived as weak levels of participation. Majority of farmers (58.8%) adopted agro-forestry technologies. The study concludes that training of beneficiaries and household incomes are key issues projects need to address in order to facilitate effective participation. The study recommends that soil and water conservation projects need to facilitate community participation in SWC projects through interventions that offer multiple and immediate benefits, improve household incomes and capacity building of beneficiaries and project staff.

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LIST OF ABBREVIATIONS AND ACRONYMS

SWC	Soil and Water conservation
FAO	Food and Agriculture organization
UNICEF	United Nations Children's Fund
GOK	Government of Kenya
UNDP	United Nations Development Fund
WHO	World Health Organization
UN	United Nations
PRA	Participatory Rural Appraisal
SPSS	Statistical Package for Social Sciences
DoF	Degrees of freedom
M&E	Monitoring and Evaluation

OPERATIONAL DEFINATION OF TERMS

Community - In this study community was defined as the actual beneficiary of project interventions. Thus the focus of participation is limited to such community.

Community Participation- Refer to actual involvement of the beneficiaries in project cycle

Adoption: - This is the decision to make full use of an idea, practice or technology (Adams, 1982). In the context of this research, it specifically means the uptake, use and sustenance of soil and water conservation interventions.

Technology- This is innovation, idea, method or object perceived as new by an individual or members of a social system. In this context it refers to SWC practices such as agro forestry or terracing.

Intervention- In this study intervention referred to soil and water conservation technologies aimed at preventing soil erosion.

Perceptions- In this study perception referred to the way participation in SWC was understood or interpreted by the community

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Community participation is a rich concept that varies in definition, implementation and the context in which it occurs (Bishop, 2001). It has been overwhelmingly shown that community participation is critical in success of conservation projects. However, there is growing recognition that community participation is a complex process that is often not well understood (Jewkas and Mourkot, 1996); Zaakul and Lysack 1998). Historically, many projects have failed to achieve their intended goals (Okoba et al, 2006). While many factors can be attributed to these failures, a key factor is the manner in which projects involve communities in planning and execution (Miseda, 2014). It is interesting to determine how community participates in soil and water conservation projects as it is perceived that such participation contributes to project success.

There has been literature to discuss the concept of people's participation since the 1950s (Guijt and Shah, 1998; Nelson and Wright, 1995). After the World Conference on Agrarian Reform and Rural Development (WCARRD) in Rome, 1979 it was declared that participation of rural people in designing policies and programs that affect their lives should be 'a basic human right'(FAO,1990). Development agencies have thus been compelled to promote community participation in their programmes. In response, community participation have become widely incorporated into policies of organisations from multilateral agencies such as the World Bank and International Monetary Fund (IMF), bilateral agencies, to the smallest people's organisations in soil and water conservation (Blackburn and Holland, 1998; Dalal-Clayton *et al*., 2003; Holmes, 2001; Kumar, 2002; White, 1996). Community participation initiatives have contributed to project success and sustainability.

World Bank's Learning Group on Participatory Development defined participation as "a process through which stakeholders influence and share control over development initiatives and the decisions and resources which affect them" (World Bank, 1996). According to UNDP participation is the creation of opportunities to enable all members of a community to actively contribute to and influence the development process and to share equitably in the fruits of development.

Ordinarily, community members participate in soil and water conservation (SWC) projects as individuals or through their organizations and may be involved at varied points of the project (Nyoni, 1988). Community participation varies from situation to situation and may take different forms. According to Rambo (2014) the extent of participation varies from information sharing, consultation, decision making and initiation of action. Actual manifestation of community participation is based on participation of community in formulation of problems and evaluation of programmes with a view of creating sustainability (Batangan 2006), Community participation implies that community members are involved in identifying and identifying soil and water conservation interventions as well as strategies to meet their needs.

Community participation in soil and water conservation is not new in the global arena. On a small scale, participatory SWC has been carried out for millennia (Gallacher, 1985). These approaches largely emerged in the seventies as it became apparent that development efforts were yielding minimum benefits to communities (Freire, 1970). Since their introduction, they have become important tools in soil and water conservation initiatives. Successes have been documented but mainly in the western countries. According to Plateau (2007) participatory projects appear to be comparatively effective and successful in communities where economic development is more advanced and more widespread and where social movements aimed at countering inequalities have a rather long history. For instance, the highly participatory Eppalock project and its predecessor "Land care" programmes in Australia and then New Zealand (Alexander, 1995) have been internationally recognized success stories (Gallacher, 1985). The latter asserts that area based soil conservation can only be achieved by many thousands of individuals acting in groups through community planning and participation. This results in ownership and ensures sustainability. Another example can be derived from Farmer Erosion Management Plan (FEMP) introduced in 2003 in South Limburg, Netherlands in which farmers were involved in planning and deciding their SWC interventions. FEMP recorded encouraging results (Spaan *et al* 2007). Indeed, successes in participatory soil and water conservation have been within the European context (Leach *et al*, 2005). Although there is consensus that genuine people's participation recognizing local context can increase the efficiency, effectiveness, self-reliance and sustainability of SWC projects (Kumar, 2002; Oakley, 1991) information on the influence of peoples socioeconomic attributes on participation in SWC projects remain scanty.

Farmers perceptions of community participation is a key social factor that is important in deciding options for soil and water conservation. Understanding farmers' knowledge of factors influence their land management practices are of paramount importance to for promoting sustainable land management practices. In considering farmer perception on participation in SWC it is necessary to assess whether their participation is effective and can lead to acceptance, implantation and soil and water conservation interventions.

A study made by Assefa, 2009 indicate farmers perceived soil erosion as a problem constraining crop production. In other cases farmers will not be interested to participate and invest in conservation and associated risks if they do not perceive significant threat to posed on productivity due to soil erosion (Wagayehu and Lars, 203). Despite studies for instance, (Batangan and Ujano-Batangan, 2000) recognizing that successful implementation of participatory soil and water conservation interventions are shaped by local situations, studies on local people's perceptions of community participation have not received much attention.

The influx in Africa by development agencies from Europe, America and other developed countries means that the participatory approaches are being adopted in many African countries. According to Okoba *et al*., (2006) the use of participatory soil and water conservation approaches by development agencies in Africa is on the rise and is based on the assumption that communities in Africa respond to these approaches readily as their European and American counterparts. Community participation is built on false assumption that communities, groups or households is homogenous or has mutually compatible interests. Differences occur with respect to age, gender, ethnicity, culture, race or wealth (Mitsue, 2006). Even though marginalized members of community may be physically present during discussions in projects, they are not necessarily given a chance to express themselves to the same degree as others. As such Social and economic differences in communities are likely to influence execution of community participation thus undermining success of participatory soil and water conservation programmes.

A number of studies have been carried out on community participation (Sims *et al* 2001, Nyangweso *et al* 2007). In an attempt to understand factors that prevent community from participation, Shoeffer (1992) found that the degree of community participation is particularly low in socially and economically marginalized regions. Such regions tend to

have a lack of appreciation of overall objectives of environmental conservation. In another study, Okoba *et al* (2006) investigated the influence of community participation on adoption of terraces in the central highlands of Kenya. The study found out that there was low adoption of technologies that required high capital investments by farmers. The study observed that the approaches for community participation must be within farmer's indicators and perceptions. Many implementing agencies feel they have to set the agenda for conservation projects.

Soil conservation has been strongly promoted in most African countries over the last 50 years (Sims *et al 2001*). However, sub-Saharan Africa continues to experience high rates of soil erosion despite conservation efforts in the last three decades (Woldeamlak, 2007). According to Okoba *et al*., (2006) despite several approaches that aimed at mobilizing East African farmers to embrace soil and water conservation activities, farmers hardly responded. Exclusion of farmers in planning, ignoring farmers socioeconomic attributes, knowledge and perceptions, lack of desired skills and capacity by the community, use of uniform and 'foreign' technologies have all been blamed for the continued soil erosion and degradation (Masanyika and Kinyasi, 2008). A large number of technically sound conservation technologies have been developed and promoted. However, no studies have examined how the soil and water conservation technology options have been adopted in Lower Nyakach division. Additionally, the increasing land degradation from soil erosion makes it necessary to critically examine how communities participate in soil and conservation.

In Kenya community participation was officially recognized in the 1950s. This was due to the realization by colonial government that not much could be achieved without involvement of the people (Rono and Aboud, 2001). However peoples participation in community activities dates back to pre-colonial times. Prior to arrival of colonialists different communities in Kenya met their basic needs in various ways through community participation (Jones and Rolls, 1982; Ndungu, 1995; Government of Kenya, 1965). In The Early years after independence many small community projects that did not necessarily require large financial or material support were successfully implemented. Most of these projects were successfully accomplished with little support from the central government throughout the country (Government of Kenya, 1970; Government of Kenya 1972). Additionally, Sessional paper no. 10 of 1965 underscored the importance of participation

of all Kenyans in development process (Government of Kenya, 1965). Subsequently, the concept of participatory approach gained significance in soil conservation programmes (Shah and Neeta 2012) as it become apparent that soil conservation efforts were yielding minimum results in Kenya (Mohan and stoke, 2000). While several factors have been indicated as restraining or enhancing community participation, the participation in soil and water conservation has not been documented, yet a number of SWC projects have worked in lower Nyakach division.

Community participation in Lower Nyakach division has been stimulated by the realization by the community that they are the primary stakeholders in the watershed in which they live (Ongor, 2005). According to Ongor (2005) community participation in decision making process involves holding discussions and open forums between the community and the development agencies in the area.

A number of studies have been carried out on community participation. A study by Miseda (2014) sought to find out the influence of participation on sustainability of projects in Kisumu west Sub County. The study found out that there was a significant association between participation and sustainability of projects. Suda (2000) examined the role of gender in community participation in environmental conservation programmes. The study noted that participation in environmental conservation have to be undertaken in the context of gender, power balance, resources and poverty. In another study Waweru (2015) found that financial and material benefits, development need and interest was found to motivate participation. However not many studies have investigated socioeconomic factors that influence community participation in soil and water conservation.

Lower Nyakach Division has seen many development agencies interventions in soil and water conservation. For instance, SCC-VI Agro forestry, Lake Victoria Environment Management Programme (LVEMP), National Agriculture and Livestock Extension Programme (NALEP) Lake Basin Development Authority (LBDA), National Environment Management Agency (NEMA), Western Kenya Integrated Environment Management Programme (WKIEMP), World Neighbours, NYADEC and Adventist Development Relief Agency among many others have undertaken various SWC projects at varied periods in Lower Nyakach division. Despite efforts by these agencies, the rates

of soil erosion remain unacceptably high (Okoba et al 2006). Ajwang *et al* (2001) attributes this to the fact that in the past soil and water conservation plans did not incorporate farmer's knowledge at planning stage. Ajwang *et al*, (2001) further notes that members of the community are brought in at the final stages and that this creates more problems than solutions.

Many organisations have employed the use of participatory approaches in their conservation. For instance, NALEP (2006-2009), a Ministry of Agriculture extension programme uses a focal area (FA) approach and has some of its focal areas within Lower Nyakach Division. According to (GOK, 2007) NALEP involves key stakeholders in both public and private sectors in dissemination of SWC technologies. Technology dissemination is centered on the use of participatory approaches towards problem diagnosis, planning, appraisal and implementation (GOK, 2003). According to Nkanatha (2000), the new agricultural extension policy NALEP which the Ministry of Agriculture has developed incorporates greater participation in decision making by stakeholders in the agriculture sector including farmers, financiers, government, donors and NGOs. Under this new policy extension programmes is based on participatory planning and budgeting with a strong emphasis on bottoms up approach. Lake Victoria Environmental Management Programme (2008-2012), a Ministry of Environment and Natural Resources programme implemented in partnership with Ministry of Agriculture utilizes a similar catchment approach (CA) and emphasizes participatory approaches. Similarly, VI Agro forestry Project (2005-2012), an International NGO has also been involved in SWC interventions in Lower Nyakach division and pursues participatory approach. According to Nina (2007), VI-Agro forestry works with capacity development of farmers and their organizations, applying group extension and participatory approach. Before extension workers start VI Agro forestry project activities in a village, a whole village is invited for a participatory planning process where resources and potentials are mapped out and joint action plans are made (Barklund, 2004).

1.2 Statement of the Problem

With most development agencies preoccupied with the proposition that community participation is the recipe that can fix all shortcomings of 'top down' approach to SWC, little attention has been made to assess how communities participate in soil and water conservation projects to establish if the participation is effective and capable of bringing

the desired change. Moreover, studies on people's perceptions about participation in SWC projects have largely been ignored. Equally, challenges of community participation and its inherent operational problems have not been investigated in Lower Nyakach division. Despite the fact that development agencies have claimed use of community participation in soil and water conservation programmes for the last three decades in Lower Nyakach division, soil erosion still remains a serious challenge to the livelihoods of people living in Lower Nyakach division. Moreover, there still remains a large tendency to overlook socio economic attributes and inputs of local communities' altogether as well as perceptions of the targeted communities and the environment in which they live. Many studies have focused on questions related to participatory aspects such as why some participatory projects succeed more than others in including the poor people in the process or in the political struggle for or against participation. Still others have analysed the approaches on making people more equipped to participate. Studies on people's perception and how their socio economic status influence participation have received little attention

Despite the fact that community participation as a means of promoting soil and water conservation has been cited in all project documentation by projects in Lower Nyakach division, information on how communities participate in SWC project is still scanty. Based on the above knowledge gaps and research problems, the study sought to answer the following research questions.

1.3 Research Questions

How do community members in Lower Nyakach division participate in soil and water conservation interventions?

The research questions which guided this research include;

1. What are the socio-economic factors influencing participation of farmers in soil and water conservation projects?
2. What are the perceptions of farmers about community participation in SWC projects?
3. How have farmers adopted soil and water conservation technology options in Lower Nyakach division?

1.4 Objectives of the Study.

The overall objective of the study was to assess community participation in soil and water conservation projects in Lower Nyakach Division.

The specific objectives are,

1. To examine socio-economic factors that influence participation of farmers in SWC projects in Lower Nyakach Division.
2. To examine farmers perceptions about community participation in soil and water conservation interventions.
3. To assess farmer's adoption of soil and water conservation technology options in Lower Nyakach division.

1.5 Significance of the Study

The study was prompted by the need to assess how people participate in soil and water conservation projects in Lower Nyakach division. Additionally, it sought to understand how community perceives on participation. Further, it sought to show how socioeconomic factors influence community participation in soil and water conservation projects. It is hoped that communities in Lower Nyakach will benefit most from this research as increased and effective community participation in soil and water conservation will empower them to organize themselves, improve and sustain soil and water conservation interventions. Additionally, an understanding of the people's perceptions, benefits and challenges of community participation is critical to design policies that would help achieve and sustain benefits of soil and water conservation interventions. The study exposed farmer's adoption of SWC technologies as well as gaps in institutional structures for community participation. This will help development agencies and policy developers to make informed decisions while making future SWC interventions and strategies. By exposing the gaps, the study will help to bring meaningful and effective community participation that will not only promote adoption but increase sustainability of the SWC interventions. Finally, this study has documented recommendations that can be integrated in government and SWC project policies, strategies and plans to promote the effectiveness of community participation in soil and water conservation projects.

1.6 Scope and Limitations of the study.

The study focused on assessing community participation in soil and water conservation projects by examining people's perceptions and how socioeconomic factors influence participation in Lower Nyakach division. The scope of this study is limited since it was based on experiences of only four organisations that had interventions in soil and water conservation in Lower Nyakach so experiences from many other organisations were not captured by this study. Similarly, given that Lower Nyakach division is a lowland area certain findings such as the prevalent soil and water conservation technologies may only be generalized to areas with similar topographical conditions. However, the findings provide information to the people and other stakeholders on issues of community participation in SWC, its benefits and challenges so that they can be addressed by projects and policy makers in similar settings.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The literature review is organized under three sections. The first section reviewed available literature on socio-economic factors and community participation in SWC projects. The second reviewed farmers' perceptions of participatory soil and water conservation planning and lastly the third covers adoption of soil and water conservation technologies in Lower Nyakach division.

2.2 Socio-economic factors and Community Participation in SWC projects.

Many factors have been cited to affect people's participation in soil and water conservation. According to Migot-Adhola and Kabwegere (1981) socio-economic factors of people such as education, rural or urban residence, sex, age, marital status, income, religion and family size have a significant influence in people's participation in soil and water conservation. They argue that if the score on each of these variables is low then participation is reduced and in that context development becomes insignificant. Moreover, farmers seldom sustain technical solutions offered by external interventions in the long term unless proper considerations are given to these factors (Mc Donald and Brown, 2000). Previously, studies concerning adoption of soil and water conservation for instance (Amsalu and DeGraaff, 2007) have raised concern that household variables may be critical determinants of household's participation in soil and water conservation projects.

Due to such gaps in knowledge, development agencies often find themselves implementing programmes without due regard to community members' social, economic and cultural conditions. This observation is supported by Puri (2010) who claims that most projects do not take into account that the communities they are going to be working with are made up of people from different of socio economic backgrounds. As such community members often find attempts at meaningful participation to be hampered by class bias (Kathlene and Martin, 1991). It is assumed in most cases that once provisions for participation have been made, people would participate (Mose, 1994). However, no thought is given to how a community is not homogenous but is made up of people whose roles are determined socially and culturally (Kathlene and Martin 1991). Moreover, community participation is voluntary and their effectiveness depends on the stakeholders

being convinced that the process serves their interests (Schubeler, 1996). These interests are influenced by certain attributes of the stakeholders. Chesoh (2009) argue that individual and economic variables are major factors affecting community participation in projects. These findings are consistent with the reports of Ur Rehman and Chrisholm (2007), Fathom *et al* (2008) and Goulding, (1990), who found factors such as information, education, and organization as effective factors in community participation particularly in environmental conservation activities. Similarly, Wells (1992) demonstrated that there was a link between participation and political and socio economic factors. Wells, 1992 observed that effectiveness of community participation in conservation projects is strongly related to the socio economic characteristics of the households. It is this missing information that prompted this study to establish and identify specific socioeconomic factors that influence people's participation in soil and water conservation.

Connor (1997) points at factors such as participation techniques or methods, means and sources of information, the societal structure as well as history and culture of a society as significant for the participation of individuals in societies. Studies, for instance (Soini, 2001; Agarwall, 2001) examined types of participatory techniques and socioeconomic factors influencing adoption of specific soil and water conservation technologies. Similarly, Tesfaye and Welder-Mariam (2013) examined factors affecting mechanical soil and water conservation techniques in Kachabira in Ethiopia. However, socioeconomic factors influencing people's participation in decision making for soil and water conservation projects have not been critically examined. Moreover, these factors have not been specifically identified to establish if they are responsible for dismal performance of soil and water conservation projects and low adoption of SWC technologies in Lower Nyakach division. This study provides an understanding of the socio-economic factors that influence participation of community in soil and water conservation projects in Lower Nyakach division.

2.3 Perceptions on Community Participation in Soil and Water Conservation projects.

Community participation has been widely recognized as critical in soil and water conservation programmes. The problem lies with identifying and utilizing suitable forms of community participation as well as peoples perceptions (Mose 1994). To some

promoters of community participation this term implies contribution in terms of labour and materials; to others it means representation by some community members in the organization structure. To others it means empowerment of community to make decisions about its own affairs (Shishane and Versfield, 1993). The third meaning brings to light the term empowerment. According to Denhil et al (1995), empowerment enhances the ability of community to make decisions that affect their lives. There must be mechanism available to allow for an effective community participation in decision making.

Mamphunye et al (2005), they observed that people participate by answering questions posted in questionnaires or interviews or other public participation strategies. Mamphunye et al (2005) assert that the people do not have the opportunity to influence proceedings and call for development of effective information, educational and communication strategies to reach out to the communities adding that communities should be informed at every stage of factors that impact on their lives. An effective participation comes through empowering community through capacity building. Kotze (2009) observed that during the programme, people are trained to acquire skills which help members of the community to perform tasks. This observation is in concurrence with the observation of Swanepoen and De- Beer (2006) that people can only make enlightened decisions if they have the correct information and knowledge. Although community involvement is emphasized in all project documents, communities seem to be largely involved at actual implementation but rarely at identification and evaluation (Nkwachukwu, 2009). This is because participation seemingly is done basically for accountability purposes and for acquiring funding (Plateau, 2007). A study by Njogu (2006) observed that the community did not have access to the organizations decision making process.

Nkwachukwu (2009) argues that organizations work with people in community, thus people's emotions, knowledge and humanness need to be respected at all times. Every individual, whether poor or poorest of the poor has a right to be part of decision making affecting his or her development (Swanepoel and De- Bees, 2006). Moreover, effort should be made to promote community awareness in interventions. Ering (2005) asserts that people's participation entails involving them in what they are sufficiently aware of. This implies that cultivation of interest, awareness and perceptions among community members is crucial. He contends that emphasis should be on self realisation and desire to

do something about it. The awareness of what is happenning elsewhere in society, in other communities could be very informative and challenging (Nkwachukwu, 2009). Community awareness could be promoted through mobilisation and training of beneficiaries.

Ervin and Ervin (1982) declare that farmer's perceptions affect positively the adoption and efforts of soil erosion. They observe that the first type of intervention which comes with empowerment is assisting people to acquire information, knowledge and skills which will enable them to increase their understanding and control of factors that impact on their lives. Development organizations should endeavor to build and develop institutional structures that can effectively promote participation. Otherwise, development agencies will continue to consider people's participation merely a discrete activity such as establishing a committee or informing villagers of project plans rather than a process that should underly every activity (Kerr *et al,* 2002). According to Adams (1991) institutional structures and shaping of people's perceptions ensure better mobilization and participation and serve as an interface between project management and community members. Community participation in soil and water conservation implies that community members be involved in identifying and determining priorities as well as strategies for meeting these needs. Evaluation of community participation is important but seems to be lacking by projects implementing community participation.

People's participation has now been acknowledged by development agencies as critical in bringing sustainable development (Mose, 1994). According to (UNDP, 2000) participation means some form of involvement of people who have similar needs and goals in making decisions in matters affecting their lives. Abrahams (1971) defines community participation as 'the theory that the local community should be given an active role in a programme and improvements directly affecting it'. Nabeel (1996) is more explicit. He defines community participation as a powerful idea which 'refers to a process by which professionals, families, community groups, government officials and others to get together to work something out in a formal or informal partnership.

Having recognized that people's participation is indispensable in sustaining development initiative in communities, there has been a paradigm shift from the traditional bottoms up approaches to farmer led soil and water conservation approaches (Jennings, 2000). It is widely believed that when farmers are involved in planning of soil and water

conservation programmes, the programme interventions have a chance of being put into practice as the commitment is there that the interventions should not fail. According to Ison and Russell (1999) scholars emphasize participatory approaches to SWC technology transfer citing failures of what used to be perceived as a top-down technology transfer. Participatory methods make dissemination of technologies more client responsive. Where community has not been involved in a project they are not equipped to fully understand the nature and rationale of commitments they are required to make (Jennings, 2000).

Through community participation members have an opportunity to express their views rather than merely respond to extension officer's questions (Ioson and Rusell, 1999). Scott (2004) observes that participatory SWC approaches conceptualize farmers and their livelihoods at the centers of innovation process and adds that farmers adopt new SWC technologies if they are rooted in farmer's natural, social and cultural reality. Similarly, Woldeamlak (2007) notes that problems of adoption are basically related to lack of genuine involvement of farmers in the conservation effort and concludes by suggesting that future soil and water conservation interventions should carefully pursue a farmer participatory approach. This helps to capture the farmer's indigenous knowledge and innovation. Integration of farmer's knowledge and perception with researchers or extension officer's knowledge is important for planning resource conservation (Ferguson *et al*, 2003). This observation is consistent with research findings of a participatory approach for integrated conservation planning in Danngon catchment which identified farmer participation as having been an essential factor for the successful planning for sustainable land management of the catchment (Lee, 2006). Proponents of these approaches claim that when people are given an opportunity to participate in decision making they are motivated since they wish to see their decision implemented effectively (Woldeamlak, 2007). This claim is however brought into question by disagreements within the field of development studies concerning the overall impact of participatory approach on projects and especially to the host communities.

Any pretense of participation results in little change (Dooris, 2006). The author argues that participation should go beyond engaging the most vocal and usually self appointed leaders. Widespread participation of real community members is vital for success in SWC projects. According to Smith (2001) particular attention to needs of the poor is important

during planning. Community members' capacity and skills are also important in order to enhance participation. A WHO (1999) report clearly points out the need to build skills and capacity for partnerships working at all levels not only of community members but also of the project officers to work with communities. Burn and konrad (1987) underscores the importance of constructive participation and decries that not all participation is good. Some critics say that participatory programmes demand significant time and often change in attitudes (Gibbon and Ljung, 2001) and therefore are difficult to practice.

Participation does not necessarily guarantee that all stakeholders groups have participated. Issues as to who to participate and who not to, usually arise. Some have argued that while these approaches can increase participation among farmers they have not brought about impact and output (Bentley, 1994). Others argue that agencies have turned participatory development into mere rhetoric. According to Conwall (2003) efforts to promote participation in projects, programmes and policy would appear to offer the prospects of giving everyone a stake voice and choice. But community driven development, participatory planning and other fine sounding initiatives that make claim of full participation and empowerment can turn out to be driven by particular interests leaving out the least powerful without much voice or by way of choice. While participatory approaches are very appealing on a theoretical level and have been used in many settings (Glasgow *et al*; 1995, Thompson *et al*; 1990, Soreensen et al 1990; Laura *et al*, 1999) little research has been conducted to mark out people's perceptions of participatory approaches by soil and water conservation projects. This study has exposed how communities perceive participation as well as how they would prefer to participate in soil and water conservation projects.

Participatory planning is not new in Kenya (Hudson, 1992). References to the concept have recurred repeatedly in many planning documents since early 60's (Adams, 1991). Aware of the fact that people have a right to participate fully in making decisions which affect their lives (UN, 1990), participation by intended beneficiaries in projects has now become a conditionality by donors. Having gained prominence in development circles, participatory approaches have now been applied in many contexts and sectors (Mohan and stokke, 2000) such as soil conservation projects (Chambers, 1994). This is due to the perception that it makes members of the community to own the intervention initiatives.

According to Conyers (1992) people are more likely to be committed to a development programme if they are involved in planning and implementation because they are more likely to identify with it and claim its ownership. The spirit of ownership ensures sustainability. M'mwereria (1993) concurs with this point of view but points out three concepts that underpin development approach, namely, community wholesomeness, participation and sustainability. The question is how to transform the community members into planners and labourers within the community's vision. Thus community needs to identify their felt needs and prioritise interventions. According to Conyers (1992) popular participation provides a valuable means of obtaining information about local conditions, needs and attitudes. Participation at all stages of a project is considered of special importance in developing countries because social and cultural gaps between planners and the local people tend to be greater. Serageldin *et al*, (1994) observes that with special focus on sustainability of projects, neglect of social factors in project design, lack of supportive institutions and grassroot participation are among basic causes of non-sustainability and failure of projects.

Local level decision making in community are fundamental for sustainable development in Kenya (Government of Kenya, 2003). Nyando District Development Plan 2002-2008 points out land degradation as one issue that need great attention and prescribes an integrated and participatory approach to conservation. Most agencies in Nyakach division soil and water conservation strategies are centered on participatory approaches towards problem diagnosis, planning, appraisal and implementation (Government of Kenya, 2003). In an attempt to ensure community participation, many development projects have adopted participatory rural appraisal (PRA) as a means to ensure community participation. According to (Parfitt, 2004) a common pattern seems to be for development agencies of all kinds to adopt PRA to claim participation. According to Okoba *et al* (2006) PRA puts the farmer at the centre of planning. Chambers (1994) observes that PRA allows a development worker to facilitate local people in expressing their knowledge. In this approach, farmers individually or collectively identify their own need, prioritize them, mobilize the needed resources and with technical input from the extension personnel execute soil and water conservation tasks. However, studies on use of PRA have indicated some shortcomings. For instance Admassie (1992) finds the extent and quality of involvement of the communities unsatisfactory. This is because community participation is a rigorous and time consuming process which many development

practitioners camouflage with quick fix consultations and pseudo- participatory gimmicks to justify community participation (Waweru, 2015). Parfitt (2004), commenting on the way PRA has been used in Kenya argues that PRA has simply become a bureaucratic requirement and participation has become equivalent to doing PRA. He asserts that donors want PRA as a way of serving to meet the procedural obligations for consultation and not participation process that throw up challenges and possibility beyond the bounds of the project that they have in mind. Lack of knowledge about how soil and water conservation projects execute participatory approaches can undermine the benefits of SWC programmes and reduce adoption of SWC technologies. This study has exposed community perceptions of participation of community participation in soil and water conservation.

2.4.1 Implementation of community participation in soil and water conservation projects.

As extension services throughout Sub Saharan Africa go through a period of radical transformation actively seeking to institutionalize participatory planning process (Anyange *et al* 2001) there is a need to critically look at community participation and how they have been applied to attain organizational and community goals in soil and water conservation especially in Lower Nyakach division. Without genuine participation of community in SWC project gains in intervention could be missed. Consequently, and as stated by Mose (1994), to facilitate more responsive planning there is need for greater understanding of local processes, institutional structures, expertise, political and economic conditions of community which informs a more judicious, selection and application of community participation. According to Njogu (2006) community participation is a terminology that is not explicitly defined but seems justified on the basis of communities attending village meetings "barazas" or carrying out the prescribed interventions. There is little research as to whether communities or soil and water conservation projects have institutional structures in place to facilitate effective community participation.

One of the common distinctions made by authors and development practitioners is that of 'participation as a means' and 'participation as an end' (Burkey, 1993; Cooke and Kothari, 2001; Dalay-Clayton *et al*., 2003; Kumar, 2002; Nelson and Wright, 1995; Oakley, 1991). Participation as means implies the use of participation to achieve some

pre-determined goals. It is a way of harnessing rural people's physical, economic and social resources to achieve the aims and objectives of development programmes and projects more efficiently, effectively or cheaply (Burkey, 1993; Nelson and Wright, 1995; Oakley, 1991).

Participation as an end is viewed as an active, dynamic and genuine process which unfolds over time and whose purpose is to develop and strengthen the capabilities of rural people to intervene more directly in development initiatives (Cooke and Kothari, 2001; Oakley, 1991). As an end, participation is seen as the empowerment of individuals and communities in terms of acquiring skills, knowledge and experience, leading to greater self-reliance (Burkey, 1993; Karl, 2000). The proponents of this view often maintain that development for the benefit of the poor cannot occur unless the poor themselves control the process, the praxis of participation. It is argued that by establishing a process of genuine participation, development will occur as a direct result (Burkey, 1993; Cooke and Kothari, 2001).

Development agencies and authors distinguish different dimensions, spaces, degrees and levels of participation (Masanyiwa and Kinyashi, 2008). The typology of participation (see table 2.1) which positions participation on a seven step ladder is useful in analysing these degrees (Bretty, 2003; Kumar, 2002; Pretty *et al*., 1995; Wilcox, 1994). Comparing these levels with the 'participation as means and ends' analysis shown in table 2.1, the first four levels on the ladder can be interpreted as 'participation as a means' while the last three levels fall under 'participation as an end'. Some suggest that the 'manipulation' which is often central to types one to four implies that they should be seen as types of 'non participation' (Pretty *et al*, 1995). Bretty (2003) conceptualizes these levels in terms of 'weak and strong participation'. According to his views, weak participation involves "informing and consulting" while strong participation means "partnership and control". He argues that, in practice agencies managing complex projects find it hard to move from the 'weak end' of the continuum and tend to assume that, intended beneficiaries will be consulted during the project design to take into account their felt needs and aspirations. Wilcox (1994) cautions that, information giving and consultation are often presented as participation leading to disillusionment among community interests. Dulani (2003) argues that, the level of community participation can be limited to being informed what had

already been decided by other key players which implied "passive participation by consultation".

Table 2.1: Typology of Participation

Level	Characteristics of each type
1. Passive Participation	People participate by being told what is going to happen or has already happened. It is a unilateral announcement by leaders or project management without listening to people's responses or even asking their opinion.
2. Participation in Information Giving	People participate by answering questions posed by extractive researchers using questionnaire surveys or similar approaches. People do not have opportunity to influence proceedings, as the findings of the research are neither shared nor checked for accuracy.
3. Participation by Consultation	People participate by being consulted, and external people listen to views. These external professionals define both problems and solutions, and may modify these in light of people's responses. Such a consultative process does not concede any share in decision-making, and professionals are under no obligation to take on board people's views.
4. Participation for Material Incentives	People participate by providing resources, for example labour, in return for food, cash or other material incentives. It is very common to see this called participation, yet people have no stake in prolonging activities when the incentives end.
5. Functional Participation	People participate by forming groups to meet predetermined objectives related to the project, which can involve the development or promotion of externally initiated social organisation. Such involvement does not tend to occur at the early stages of project cycles or planning, but rather after major decisions have been made. These institutions tend to be dependent on external initiators and facilitators, but may become self-dependent.
6. Interactive Participation	People participate in joint analysis, which leads to action plans and the formation of new local institutions or the strengthening of existing ones. It tends to involve interdisciplinary methodologies that seek multiple perspectives and make use of systematic and structured learning processes. These groups take control over local decisions, and so people have a stake in maintaining structures or practices.
7. Self-Mobilisation	People participate by taking initiatives independent of external institutions to change systems. They develop contacts with external institutions for resources and technical advice they need, but retain control over how resources are used. Such self-initiated mobilisation and collective action may or may challenge existing inequitable distributions of wealth and power.

Source: Adapted from Pretty *et al* (1995) and Kumar (2002).

From the discussion, it has been recognized that community participation is an indispensable activity that leads to acceptance, implementation and sustainability of soil

and water conservation interventions by community. However it is not clear how community participation is implemented in practice in Lower Nyakach division. People's perceptions on how participation is implemented has largely been ignored by most studies. This missing information prompted this study which examined how community participated in soil and water conservation project in Lower Nyakach division.

2.4 Adoption of soil and water conservation technologies.

Soil and water conservation is a global issue. Estimates show that about 35% of the earths total land resources are significantly degraded (Lee, 2006). This means that more than one third of the land resource is quickly losing its ability to be utilized for food production. The growing human population and increased socio-economic activities have placed significant pressure on land and water resources (Boyd and Slaymaker, 2000) adding that has resulted in serious environmental problems including soil erosion and degradation. Given that more than half of the world's poor depend heavily on natural resources for livelihood, there is need to find new natural resource management approaches for secured and enhanced livelihood (Gaventa, 2001). Soil and water are critical elements in any agricultural production system. The economic costs of mismanagement of these resources are quite significant and include loss of livelihoods and poverty (Lee, 2006).

A soil and water conservation technology is basically new knowledge or innovation. This new knowledge may originate from research and may be transferred via some type of channel (analog or digital) from person to person, group to group and organization to organization (Gibson *et al*, 2002). Everet(1962) suggests that innovation spread through society in an S-curve as the (innovators), early adopters select the technology first followed by the majority until a technology become common. According to Degraaff et al, (2008) there are three phases of adoption. The acceptance phase, actual adoption phase and final adoption. The acceptance phase generally includes awareness, evaluation and trial stages and eventually leads to starting the investment in certain measures. The actual adoption phase is whereby effort and investment are made to implement soil conservation measure on a more than trial basis. The third phase is where the existing soil and water conservation measure are maintained for many years and new ones are introduced on other fields by the same farmer. Kessler (2006) considers soil and water conservation measure fully adopted when their execution is sustained and fully integrated in the

household farming system. Thus merely having a soil and water conservation measure does not necessarily constitute adoption as farmers may discontinue the measure once project assistance ends.

As resources become increasingly scarce, the need for effective and efficient technology transfer strategies has become increasingly crucial (Dale, 2004). Decision to adopt is influenced by environment as well as socioeconomic factors of the community. This include risks involved, capital and intellectual level of the farmer, flexibility and complexity of the innovation as well as the farmers own objectives and perceptions (Ervin and Ervin, 1982). Traditionally, extension has adopted strategies and approaches where scientists develop technologies and farmers were expected to adopt with little consideration for farmer's point of view (Conyers, 1992). He points out that where such projects fail to engage end users of technology properly, there is usually mistrust of the new technology. However, properly carried out participatory technology interventions lead to successful adoption of new technologies leading to community empowerment and public acceptance (Clark, 2003). Adoption of soil and water conservation technologies provide an indication of project success. Indeed the ultimate goal of any SWC is then based on how the target beneficiaries have adopted and sustained the SWC conservation technology options. While individual SWC projects and programmes report adoption of their interventions to meet donor requirements, there is still little information on how communities in Lower Nyakach division have adopted SWC technologies after decades of interventions.

Approximately 80% of Kenya's population earns its livelihood from land and natural resource based production systems (Government of Kenya, 2003). Sustainable use of land, management of environment and natural resources especially land, water and forests therefore forms an integral part of the natural planning and poverty reduction efforts (Government of Kenya, 2001).

Soil erosion is a major constraint to agricultural production in Kenya. The magnitude and rate of soil erosion continued to rise despite considerable efforts made during the past three decades in conservation activities (Okoba *et al*, 2006). Wood (1990) report that indicate that these conservation efforts have not been successful as they could because the farmers were not enthusiastic in accepting widely and maintaining the soil and water

conservation measures. This could be due to farmers lack of interest due to perception that it is not a significant threat to their livelihood.

In Kenya soil and water conservation efforts date back to pre-independence days. Before independence soil and water conservation was implemented through strict regulations, prohibitions and coercive communal work (Dent 2007). It was linked to colonialism and was largely abandoned after independence. At different stages, government agencies, international donors, NGOs and church based groups have been involved in soil and water conservation. The agencies have used various strategies and approaches to promote soil and water conservation (Njogu 2006). Some have used incentives such as tools, subsidies, food, coupons and access to equipment (Gichuki *et al*, 1994). However, Dent (2007) observes that such strategies have become counter-productive once the incentives are dropped. Such strategies only provide marginal unsustainable impacts to the communities in which they have been carried out.

This observation is shared by Kiara *et al* (1999) who observe that for over 50 years, conservation programmes have produced only patchy and unsustainable conservation of soil and water resources. According to a report by Peace corps (2002) use of material incentives to induce community participation in international development programmes has also been shown to devalue project purpose as communities decline to participate if they are not well compensated. Thus, using material incentives may not enhance long term motivation or promote sustained commitment to participate in soil and water conservation projects.

Farmers have often been blamed for this and accused of being ignorant, uncooperative and conservative (Douglas, 1993). However, Keough (1998) believes that farmer's knowledge and perceptions about the project interventions must be known prior to implementation of any participatory project. The author also emphasizes indigenous knowledge as important in attracting public participation. According to Bruening and Martin (2003) the science and practice of soil and water conservation have been dominated by a technical approach which does not take into account the perceptions and knowledge of people living in the rural areas. When community are empowered to participate in decision making for soil and water conservation projects they are likely to come up with homegrown solutions to their soil and water conservation efforts.

Farmers need to find an incentive to engage and invest in soil and water conservation practices. According to Anderson and Thampapillai (1990), SWC policies have in the past tended to focus on the use of subsidies. Such policies are grounded on the belief that SWC measures are inherently desirable and the benefits of the adoption outweigh the cost of their implementation and maintenance. However, Lutz *et al* (1989) show that this is not frequently the case and the benefits from certain conservation techniques do not justify their costs. This is due to the perception that they do not meet farmers' immediate needs for food or cash while requiring heavy financial investments. Thus in principle, choice of the technology should be left with the communities as they understand their needs better.

Nyando district development plans have emphasized proper utilization, management and conservation of natural resources encouraging community participation. For instance, Nyando District Development Plan 2002-2008 stressed the need for soil and water conservation. It proposes education of local community on the importance of conservation. It also sites lack of commitment towards conservation efforts. The plan contends that past intervention efforts have been immense. This observation is supported by a study by Biamah (1997) which observed that despite good interventions and massive investments by farmers, government and other agencies, soil degradation problems still persist in Nyando river basin. Biamah (1997) allege that past soil and water conservation efforts did not include farmer's indigenous knowledge and economics at planning stage. Onyango *et al* (2002) identified top-down approach to technology transfer as a key problem to adoption and recommended participatory technology development and transfer.

This study exposed how community participates in soil and water conservation projects in lower Nyakach division. The study examined the socioeconomic factors that influence community participation. Further, the study examined how soil and water conservation options had been adopted by farmers in Lower Nyakach division.

2.5 Conceptual Framework

This study assessed how community participated in soil and water conservation projects and if socio-economic factors influenced such participation. Williams (1997) defines socio-economic status as the relative position of a family or individual on a hierarchical social structure based on their access to, or control over wealth, privilege and power.

Independent variables in the study were socioeconomic factors such as age, gender, marital status, education, training, size of household, sources of income, employment status and land size. Roseland (2000) argues that decision of a farmer to participate in a conservation programme may be affected by his or her socio-economic status and perceptions. The dependent variable was community participation in soil and water conservation. Farmers' perception on participation was measured as community members' involvement in problem analysis, determining of SWC interventions, monitoring and evaluation, Feed-backing to extension agents and carrying out interventions which determine the levels of participation. Thus in this study participation by carrying out SWC conservation and feed-backing would be conceptualized as weak forms of participation. Participation in problem analysis, determining interventions, and monitoring and evaluation would be conceptualized as strong forms of participation. According to Boyd and Slaymaker (2000) farmer's awareness and information of soil erosion as a problem and SWC techniques as a solution is key in influencing household's decision to participate and invest in soil and water conservation. Community's awareness and information may influence how community participate in soil and water conservation. The study determined how the various soil and water conservation technologies had been adopted in Lower Nyakach division,

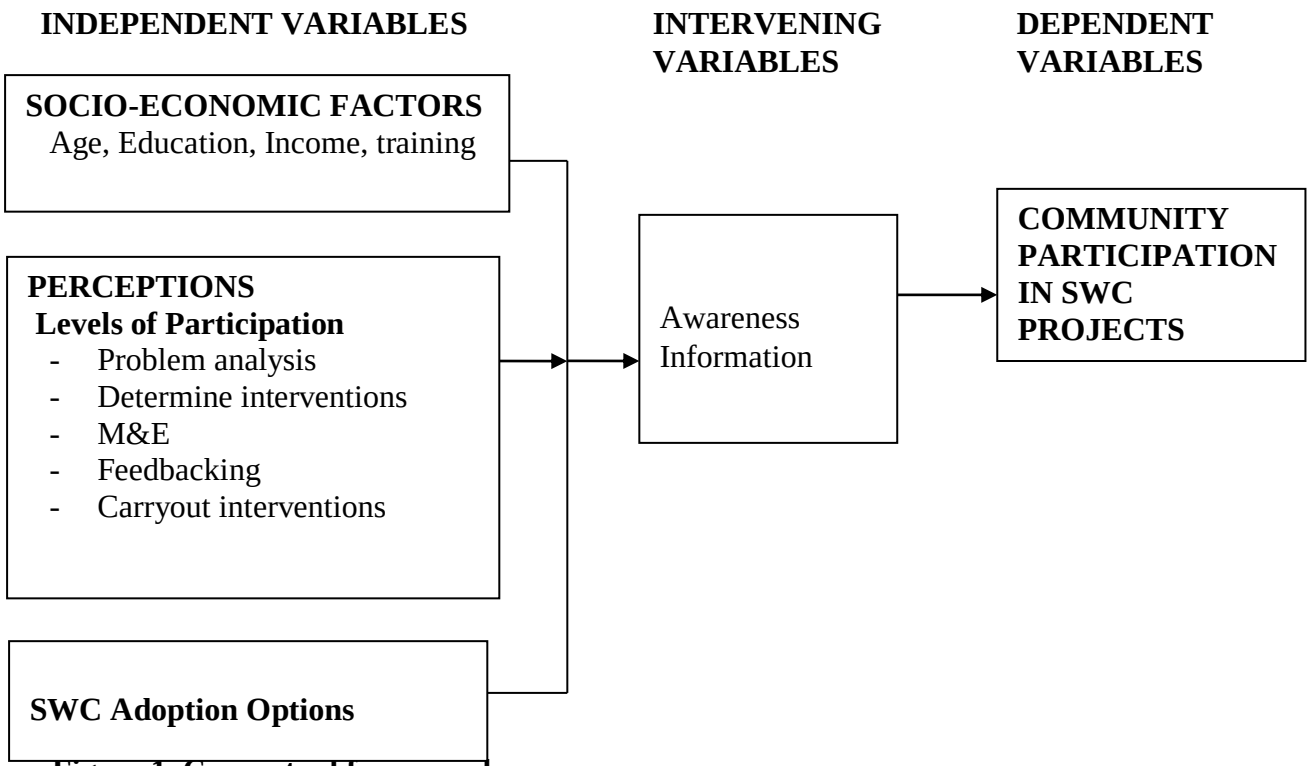

Figure 1. Conceptual framework.
Source: Own.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter gives an outline of the methods and approaches that were used in sampling, data collection as well as techniques employed in data analysis and presentation. These methods and approaches are significant when drawing conclusions in such a study. It also provides a background of the study area so that this study can be put in context and limit generalizations. The chapter is organized under the following sections: Study area; study design; Population; Sampling and sample size determination; Data collection procedure; Secondary data; Data analysis and finally ethical considerations.

a. Study Area

Lower Nyakach division is one of the four division of Nyakach sub county. It lies -0.2833^0 Latitude and 34.8833^0 Longitude. It borders Nyando sub county to the North, Kericho sub county to the east and Rachuonyo sub county to the south. According to National bureau of statistics, 2009 population census, the sub county population was 58,789 and has a total land area of 186.3km^2. The area is 1100m above sea level. The division has eight locations and seventeen sub-locations. The area has a population density of 316 persons per km^2. The area is made of quaretnary sediments consisting mainly of silt, sand, gravel and capped by black cotton soil (Mitsue *et al* 2006).In terms of drainage a tributary of Nyando River, Awach runs through the division. The river periodically floods in the lower courses causing erosion, displacement of families, destruction of property, crops, livestock and death (GOK, 2002). Soils are moderately well drained to imperfectly drained, deep to very deep, brown to black. They range from saline and sodic sandy clays to cracking clay (planosols, Gleysols, Fluvisols and Histosols) (WKIEMP, 2004). The area receives bimodal rainfall with long rains from March to May and short rains from September to November. Annual rainfall for the area ranges between 600mm and 1260m. January and February are the driest months while April and may are the wettest. The area was initially a grassland that served as grazing land until 1970s when land was demarcated for agricultural use (Mitsue,2006). These demarcations contribute to soil erosion since movements of animals were restricted to narrow paths between farms leading to waterpoints. About 52% of the people derive their livelihood from agriculture (District Development Plan 2002-2008). Main food crops grown are maize, cassava, sorghum, cowpeas and sweet potatoes whereas the main cash

crops are rice and cotton. In livestock production, farmers still keep indigenous livestock that are herded in large open grazing lands that further contribute to erosion due to destruction of soil covers. Farmers also engage in bee keeping and fishing while others

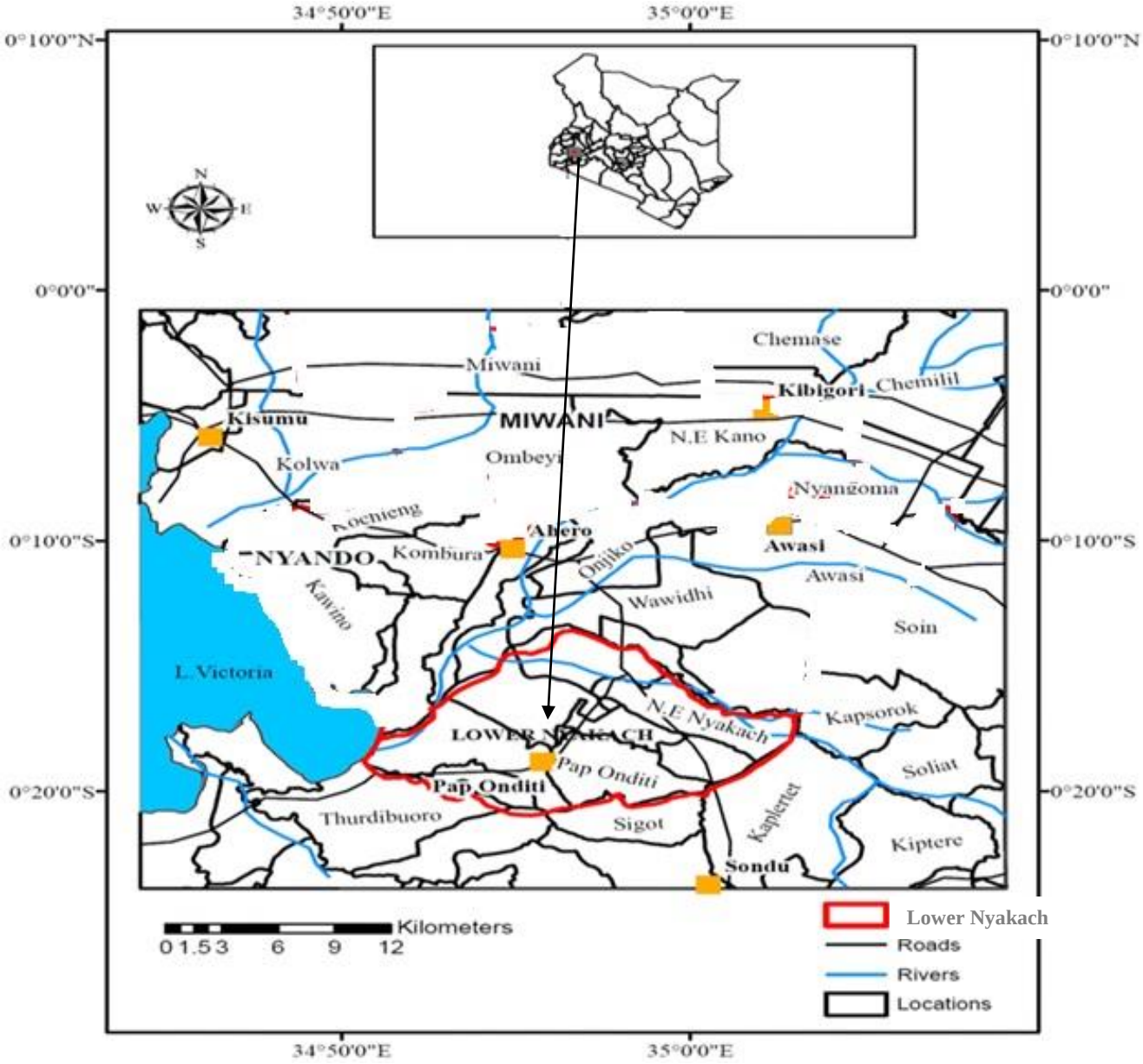

Figure 2. Map of Kenya showing Lower Nyakach Division. Source; Central bureau of Statistics.

3.2 Study Design

A cross sectional descriptive study design was used by taking a snapshot of people's assessment of community participation in soil SWC projects. Descriptive research was

used in order to give an understanding of the current situation about how the communities in Lower Nyakach division participated in soil and water conservation projects. Descriptive study determines and reports things the way they are such as possible behaviours, attitudes, values and characteristics (Gay, 1981; Mugenda and Mugenda 1999).

3.3 Study Population

The unit of analysis for this study was the household. A household was defined as a unit, with a definite household head, and consists of all the people that '*eat from the same pot'* (GOK, 2006). The study targeted four locations in lower Nyakach division with 6290 households that exhibited more soil and water interventions from which sampling was done.

Table 3.1. Number of Households in the study area

Location	***Sub location***	***Number of Households***
Central Nyakach	Jimo West	978
	Olwal	239
East Nyakach	Jimo East	814
	Kandaria	301
North East Nyakach	Agoro East	633
	Agoro West	1,453
Pap Onditi	Kabodho East	1,295
	Moro	577
Total		**6290**

Source: Ministry of Agriculture (Lower Nyakach District, 2007)

3.4 Sampling Procedure and Sample Size Determination,

3.4.1 Sampling Procedure.

The study targeted households in four locations in lower Nyakach Division namely, East Nyakach, North East Nyakach, Central Nyakach and Pap Onditi. These locations were purposively selected due to the fact that a great deal of soil and water conservation programmes have been undertaken there by various organizations and hence had experienced more interventions in soil and water conservation. A multistage sampling

technique was used in selecting households for study. A total of 384 households were randomly selected and used for this study. Multistage sampling was used in order to get the areas where various soil and water conservation programmes had been undertaken in the division. The sampling procedure involved a random selection of 2 sub-locations from each of the four locations. These were Jimo west, Olwal, Jimo east, Kandaria, Agoro East, Agoro west, Kabodho East and Moro. Table 1 shows the number of households in each sub location. Each sub location comprised of several villages from which one village was randomly selected from each of the eight sub locations making a total of eight villages. The random selection was done by use of a random number generator. The selected sub locations and villages were then included in the sample. Systematic sampling was then used to select the 384 household units that were studied. A list of households provided by village elders was assigned numbers and every 10^{th} household was picked for interview. The first household was selected randomly. In this study 384 households were studied.

3.4.2 Sample Size Determination.

From Table 1 above the population in the study is 6290 households. The sample population was then determined by use of the formula by Cochrane (1975);

$$n = \frac{Z^2 pq}{e^2}$$

For sample population >10,000

Where,

n=Sample Population

Z=1.96 from the Normal distribution corresponding to 95% confidence level.

e= Level of precision 5%

p= Proportion of target population estimated to have a particular characteristic (If no reasonable estimate use 50 %(0.5)

q= 1-p (Proportion of in target population not having required characteristic i.e. 50% (0.5)

Thus, at 95% confidence level and 5% sampling error;

$$n = \frac{1.96^2 (0.5)(0.5)}{0.05^2} = 384$$

Thus 384 households were sampled for the study. The level of precision (Sampling error) of 5% was used as it gave an acceptable level of accuracy required by the study. There are several popular notions about the necessary size. However, according to Chava-Nachmias and Nachmias (1992), adequate size of sample is properly estimated by deciding the level of accuracy expected in a study.

3.5 Data Collection Procedure and instruments

The study used both quantitative and qualitative data collection methods. Quantitative data was collected by carrying out a survey using structured and semi- structured questionnaires. Qualitative data was collected by use of key informant interviews (KI), focus group discussions (FGDs) and observation checklist.

3.5.1 Pretesting of Instruments

The instruments were pre-tested on 10% of sample population (Mulusa 1999). In this study, the sample population is 384 therefore, 40 households were used for pretest of instruments. This number was used to provide equal number of households in each location. The 40 household were selected from the 4 locations. In each location 10 households were randomly selected and household survey carried out using the designed questionnaires. These households were consequently excluded from the actual study (Mugenda and Mugenda, 1999). Pretest was done to check for acceptability, validity and reliability of the research instruments (Peil, 1982).

3.5.2 Household Survey / Structured and Semi-structured questionnaires

Interviews were carried out in respondent's homes using local language, Kiswahili or English. The interviewer would establish the language appropriate for each respondent and would interpret the questionnaires to suit the language of the interviewee. Questionnaires based on the study objectives combining closed, open ended, contingency and matrix questions were used. The respondent was household head but in his or her absence any other older member responded to the questions asked (Peil, 1982). Questionnaire schedule elicited information on demographic socio economic factors, land use and adoption of SWC technologies among others. It also generated information on community's perception and challenges in community participation in soil and water conservation projects. This supplemented qualitative data that was obtained from focus group discussions and key informant interviews.

3.5.3 Key Informant Interviews

A total of 10 key informants were selected purposively to provide critical information regarding perceptions, challenges and benefits of community participation in soil and water conservation projects. In-depth interviews with key informants were done to obtain data on soil and water conservation interventions, how the participatory approach was executed by the projects as well as their experiences on participatory planning in lower Nyakach division. In-depth interviews were done with two project officers from VI Agro forestry and LVEMP, two from Ministry of Agriculture extensions office involved in NALEP. Two Provincial Administration staff (Chiefs), one youth, one women group leader and two opinion leaders in the study area were interviewed in order to facilitate triangulation of data. It also assisted in clarifying issues on types of soil and water conservation technologies, programmes and activities as well as challenges in use of participatory approaches. It further enabled the researcher to gain insights into community perception on participatory planning.

3.5.4 Focus Group Discussions (FGDs)

Focus group discussions were conducted with youth, women and vulnerable groups. One FGD was conducted in each of the four locations consisting of representatives from youth groups, women groups, opinion leaders and the information generated recorded. Each focus group had 10 participants. This number of participants was preferred because it allowed all members to participate. A discussion schedule based on objectives of the study was developed to guide the study. FGD's generated issues on perception and attitudes on SWC planning and execution. It also brought to fore perceived benefits and challenges of participatory approaches. Further it offered members of the community with low literacy levels a chance to express their opinion and attitudes. The FGDs were tape-recorded. The recordings were reviewed and notes taken by the researcher. This facilitated a better understanding of key issues raised in the discussions. However, before any recording was done the participants permission was sought and an explanation of why the proceedings were being recorded was made.

3.5.5 Direct observation

In this study interviews were conducted in the respondent's homes and this enabled researcher to observe presence or absence of soil conservation interventions in order to

ensure validity of information from farmers by having a farm walk. This was done with the aid of observation checklist that was developed. A record of critical events relating to adoption of SWC technologies was done. Record of information such as land use, SWC interventions among others was made.

3.5.6 Secondary Data

The study adopted desk review to obtain secondary data. This was done by reviewing available and relevant documents from Maseno university libraries, National libraries, District Documentation and Information Centre's (Kisumu East and Nyando Districts), VI Agro forestry library, reports, journals and internet. These enabled the researcher to gather information on the current participatory SWC practices in lower Nyakach, land use, socio-economic conditions and other issues surrounding community participation in SWC projects.

3.6 Data Analysis

Data were analysed by both qualitative and qualitative methods to address the research questions. Quantitative data collected were analysed using Statistical Package for Social Sciences (SPSS version 8). The quantitative data were analyzed using descriptive statistics where the data were quantified, summarized and presented as in form of percentages and frequencies. The research findings were presented using frequency tables and percentages. Chi square tests were run to determine any associations between dependent variable and specific household parameters. Qualitative from FGDs was transcribed manually by reviewing audio and notes, translated and analyzed. Ethnographic method of content analysis was employed in qualitative data by establishing patterns, trends and relationships from emerging themes in the data gathered (Mugenda and Mugenda, 1999). Qualitative data was presented thematically and illustrated through verbatim quotation.

3.7 Validity and Reliability

In order to ensure validity and reliability in this study, focus group discussions (FGDs) and key informant (KI) interviews were conducted to corroborate and validate issues raised during household surveys. Through FGDs and KIs the study clarified on isues raised during household surveys.

In order to improve validity and reliability data collected from one FGD was triangulated against other FGDs in Lower Nyakach Division and analysed.

3.8 Ethical Issues and Dissemination

Integrity was upheld throughout the study. Informed consent was sought from all respondents whether they wished to participate in the interview or not. Respondents were given a clear explanation of the reasons of the research and assured of confidentiality before any interview took place. In cases where photographs were taken for instance during FGDs, the participants were given explanations why the photos were to be taken and their permission sought.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents, interprets and discusses the data collected on socioeconomic factors, perceptions about participation and adoption of soil and water conservation technologies in Lower Nyakach division. The chapter is divided into four sections. The first section discusses the socio-demographic characteristics of the respondents; the second section explains socio-economic factors and whether they influence participation in soil and water conservation. The third section provides information on farmer's perceptions on execution, benefits and challenges of participatory approaches. The last section provides information on the level of adoption of soil and water conservation in Lower Nyakach division.

4.2 Socio-demographic characteristics of the respondents.

4.2.1 Gender Distribution of Respondents

Table 4.1 shows the percentage of gender composition in the study area. The results revealed that the number of male headed households (59.09%) was higher than female households (40.91%).

Table 4.1 Gender of respondents.

Gender	***Frequency***	***Percentage***
Male	227	59.09
Female	157	40.91
Total	**384**	**100**

When the respondents were asked further if they were members of any group or committee involved in soil and water conservation (SWC), the results revealed that (54%) were members of a group or committee and 46% were not members. The study further sought to find out the gender composition of soil and water conservation committees. The results showed that (66.7%) were males and (34.3%) were females. These results indicate that males were more than females in soil and water conservation committees or groups. This means females are under-represented in SWC committees. This finding is consistent

with findings of Suda (2005) who observed that women participation in conservation work is very low. She asserted that women are under-represented in committees as the struggle for economic survival make conservation a low priority issue to women. Similarly Dinh (2004) found that males occupy more advantageous positions in soil and water conservation than females. This may be due to perception that men have more resources at their disposal to engage in soil and water conservation activities than their female counterparts.

4.2.2 Marital Status

The study sought to establish the marital status of respondents within the household. Table 4.2 presents this information. The study established (46.46%) were married, (20.71%) were single, a further (29.80%) were widowed and only (3.04%) were either separated or divorced. The results show that majority of respondents were married. According to Jibowo (1992) a vast majority of rural population is composed of married people. Marriage may be viewed from the perspective that it can influence family size and thus influence labour availability for farming and conservation. According to Arnold (1987) one of the major factors that affect participation and adoption of SWC technologies is labour availability. Thus a strong competition for household labour with other activities in the farming system may greatly influence farmers' decision to participate and adopt soil and water conservation technologies.

Table 4.2 Marital Status

Marital status	***Frequency***	***Percentage***
Married	178	46.46
Widowed	114	29.80
Single	80	20.71
Divorced	10	2.53
Separated	2	0.51
Total	**384**	**100**

4.2.3 Family Size

The family size in the study ranged from 1 – 12 persons per household. The mean household size was 7 family members. Household size is used as a simple measure of

labour availability (Nkonya et al 1998) adding that adoption of new technology often implies a need for additional labour. Thus, labour availability can be associated with successful adoption of technology. Hailu and Runge-Metzger (1993) argue that it is essential to recognize that soil and water conservation measures impose opportunity costs through their demand for labour. Thus high number of family members that may provide more farm labour is important for farming as well as for soil conservation activities.

4.3 Socio- economic factors that influence participation of farmers in soil and water conservation.

The study sought to investigate the socio-economic characteristics of the respondents. Further, the study sought to find out if there were association between socio-economic factors of respondents and participation in SWC. Chi square tests were performed and associations between socio-economic factors and participation in SWC projects determined. Table 4.3 gives a summary of chi square analysis for the socio-economic factors against participation in soil and water conservation.

Table 4.3 Chi-square values of socio-economic values with participation.

Socio-economic factor	***X^2Value***	***Degree of freedom***	***P Value***
Age	7.592	7	0.18530
Education level	8.337	6	0.21450
Level of income	13.308	5	0.02065
Source of income	16.071	3	0.00109
Own Land	0.10646	1	0.74420
Size of land	6.663	3	0.08327
Received training in SWC	59.6300	1	0.00000

On cross tabulation of the various socio economic variables and participation of the respondent in soil and water conservation project, the study observed no significant association between age, level of education, owning land, size of land and participation at 0.05 level of significance. Thus, it can be concluded that age, level of education, owning land, size of land does not influence participation community in soil and water conservation. On the other hand cross tabulation of level of income, source of income and

training in SWC and participation revealed significant association with participation in soil and water conservation project.

4.3.1 Age Distribution of Respondents

Table 4.4 presents the age distribution of the respondents. The study revealed that 60.50% of the household heads were aged 45 and above. This indicates that majority of farmers in rural areas are older people.

Table 4.4 Age of respondents

Age	*Frequency*	*Percentage*
19-24	25	6.60
25-29	29	7.61
30-34	29	7.61
35-39	25	6.65
40-44	45	11.08
45-49	52	13.71
50-54	50	13.80
>55	129	32.99
Total	**384**	**100**

The study further revealed that age category over 55 years had the highest proportion. This represented 32.99% of the entire sample. This means that majority of farmers engaged in soil and water conservation are old as the young may have migrated to urban areas in search of jobs. This is consistent with the assertion of Ekong (2003) that rural areas of Africa are dominated by older farmers because of the outmigration of youths to urban areas in search of white collar jobs. The age group of 19- 39 formed only 28.47% of the study respondents. Considering that this age group is perceived to have the energy to participate in soil and water conservation, this finding indicates that the age group is not sufficiently available to participate in SWC projects. The study further sought to establish if there was any association between age and participation in soil and water conservation projects. As shown in Chi-square values in table 4.3, there was no association between age and participation in SWC projects (X^2= 7.592 df=7 P= Value 0.8653). The influence of age on participation in soil and water conservation is not clear

Elham et al (2008). This finding is corroborated by the findings of several studies (Nkonya et al 1998 and Ntege et al 1997) which found no relationship between age and participation of farmers in soil and water conservation technologies. Adesina and Baidu (1995) found that the influence of age on participation had no particular direction as adoption of soil and water conservation technologies are location or technology specific. For instance, adoption of stone bunds for SWC would be hampered if farmers cannot get stones within a reasonable distance.

However other studies, for instance Araya and Asaf (2001) have reported age as an important aspect influencing participation. They contend that younger farmers are usually perceived as more educated and have a higher awareness about the problems of soil erosion and therefore may be more willing to participate in SWC activities. As farmers get older, it is reasonable to assume that they pay less attention to long term investment in soil and water conservation. Younger farmers are more concerned about the future productivity of land as they have a higher life expectancy and a longer planning horizon (Araya and Asafu, 2001). Farmers in this age group are assumed to have a good understanding of problems of soil erosion due to access to information and as a result are usually more interested in soil and water conservation. On the contrary a study by Badal et al (2006) found participation to be positively related to age. They argue that older farmers tend to participate more in development work. This is ostensibly because older farmers, being more experienced could better access the utility of technology interventions than younger farmers hence will be more motivated to participate. In view of this, it can be deduced that age play a role in determining participation in soil and water conservation. However the influence may be negative or positive.

4.3.2 Farmers Level of Education and participation SWC.

The findings in table 4.5 indicate that majority (88.38%) of respondents had some formal education indicating a relatively high literacy rate. Most household heads (30.81%) had secondary education while (22.73%) had primary education. Further 12.63% had college education and (1.52 %) had university education. Only 11.62% had no formal education. Although education is recognized as a vehicle towards achieving development goals (Onduru et al 2002), results in table 4.4 indicate no association between level of education and participation in SWC (X^2= 8.337 df=5 P.value 0.2145). This is consistent with the findings of Olali (2006) who found no relationship between education and participation in

SWC in Machakos district. Though this study did not find any association between participation in SWC and education, some studies have found otherwise. For instance a study by Boyd and Slaymaker (2000) in Western Pare lowlands in North East Tanzania found education having a negative influence in participation of households in SWC. They attribute the negative influence to increased off- farm activities associated with higher education levels.

Table 4.5 Education level of household heads.

Level of education of household head	***Frequency***	***Percentage***
No Formal education	44	11.62
Incomplete Primary education	66	17.17
Primary education	87	22.73
Secondary education	118	30.81
College education	48	12.63
University education	21	1.52
Others	7	3.52
Total	**198**	**100.00**

4.3.3 Farmers income level and participation in SWC

Respondents indicated that their incomes were from sale of farm produce, petty trading, menial jobs and money received from relatives working in urban centres. The study established that most respondents had a monthly income between Ksh 3,001 to 6,000. This represented 50% of the entire sample of household heads. The income category that had the second highest number was the income category below 3,000 Ksh. Only 2.53% of the respondents said they earned over Ksh 15,000. Table 4.6 below presents this information. From the above results, majority of people earned below Ksh 6000 per month indication a low income community.

Table 4.6 Income levels of respondents

Monthly Income(Kshs)	*Frequency*	*Percentage*
Below 3000	81	21.21
3001-6000	192	50.00
6001-9000	74	19.19
9001-12000	17	4.55
12001-15000	10	2.53
Over 15000	10	2.53
Total	384	100

As shown in Chi-square in table 4.3 the study found that participation in soil and water conservation had significant association with household's level of income (X^2 =13.308 df=6 P.Value= 0.02065). This finding is consistent with findings of Milberth and Goel (1977) who found association between income and participation in soil and water conservation planning activities. In their study, they found those with higher status and incomes showing a higher participation than those of low status and incomes. Similarly study by Asaafu 2008 found income to be statistically significant to farmer's conservation efforts. This is probably because people with higher incomes are more likely to participate as a result of greater resources, greater opportunities and social norms which encourage such behaviour (Milbert and Goel 1977). This finding is further supported by a study by Nwachukwu (2009) in Kwazulu which showed that in communities where people were required to make financial contributions in their household's SWC activities, farmers did not make financial contributions nor participate in the programmes.

4.3.4 Farmer's sources of income and participation in SWC

Regarding sources of income, the study established that most of the respondents had their income coming from both on farm and off farm sources. On farm sources mentioned included crop mainly local staples crops such as maize, sorghum and beans. Farmers also reared livestock such as cattle, sheep, goats and poultry. Off-farm sources mentioned by respondents were small scale trading, charcoal production, sand harvesting and bicycle or motorcycle taxis commonly refered to as "boda boda"as well as menial jobs. More than half of the respondents had their income coming from both on farm and off farm sources representing (50.51%) of the entire sample. Table 4.7 presents this information.

Table 4.7 Sources of income of the household heads

Sources of Income	*Frequency*	*Percentage*
On-farm Sources	107	27.78
Off-farm Sources	54	14.14
Both on-farm and Off-farm sources	194	50.51
Others	29	7.58
Total	**384**	**100**

In this study source of income was categorized as on-farm or off- farm. As indicated in table 4.7 above, majority of farmers get their income from both on farm and off farmer sources. This is in concurrence with the findings of Onduru et al (2002). According to (Onduru et al 2002) although very crucial, farming on its own is increasingly unable to provide sufficient means of survival to people in rural areas. There is increasing tendency for small holder farmers to diversify their livelihood strategies (Ellis, 1999). Thus, majority of farmers in developing countries combine on-farm and off-farm activities and make decisions on the context of their whole system and not on a single basis alone (Onduru et al, 2002). He adds that off farm income is a very crucial element of household income. Focus group discussion in this study revealed that seasonal crop failures are common and farming alone does not fulfill the requirements necessary for survival of majority of the households. Consequently, most households adopt a diverse range of livelihood strategies as captured buy a verbatim for a participant in focus group discussion below.

> Most times the rains are not enough and so we have poor harvest. At times we get nothing. If you have nothing else that you do, you will lack food and your children will not go to school. Many times it gets very dry and our animals have no water to drink. We have to walk long distance to the few streams in the area.

Most community members have to seek alternative livelihood activities to supplement farm work such as petty trading, doing menial jobs

Almost a third (27.78%) of respondents had their income coming from on farm sources. The study found that source of income had influence on peoples participation in soil and

water conservation projects ($X^{2=}$16.071 df=3 P Value=0.00109) as indicated in Chi-square table 4.3. In general, the relationship between off farm activities and participation in soil and water conservation is poorly understood (Kessler 2006). Off farm activities can be a source of income and may encourage farmers to participate and invest in soil and water conservation activities. However, findings of Badal et al (2006) found a negative relationship between off-farm income source and participation in soil and water conservation in Rajasthan India.

Off- farm incomes are perceived to limit time available for participation in soil and water conservation. According to Badal et al (2006) the number of days an individual works on off farm activities leaves them with little time for being associated with watershed activities. Moreover, their dependence on these resources becomes less which lead to their disinterest in the programme. Additionally, the farmers may have limited time to spend in participating in soil and water conservation.

4.3.5 Land tenure and participation in SWC

The study also established that a majority of people owned the land they lived in. Results in table 4.8 show that majority (94.44%) of the respondents owned land in which they lived indicating that majority had security of tenure. Security of tenure is perceived as an important variable determining investment in soil and water conservation. However this study found that participation in SWC projects did not depend on whether you owned land or not (X^2 =010646 df=1 P value=0.74420) indicated in Chi-square table 4.3. A study by Asaafu (2008) observed that ownership of land was not significant in participation in soil and water conservation. However, it is perceived that lack of tenure security can encourage shortsighted decisions and irresponsible use of land resources. A study by Udayakumara et al (2010) found that farmers who cultivate land owned by others were less likely to participate and invest in soil and water conservation. They argue that tenants spend part of their income as rent for the land which acts as a financial obstacle to soil conservation. On the other hand, land owners will not be willing to invest in soil and water conservation because they feel part of the on-farm benefits of conservation would go to the tenants (Ervin and Ervin, 1982).

Table 4.8 Ownership of land

Do you own the land you live in	*Frequency*	*Percent*
Yes	363	94.44
No	21	5.56
Total	**384**	**100**

4.3.6 Land size and farmers participation in SWC

Land size was generally small in the study area. Majority of the respondents had 1 to 4 acres of land constituting 66.16% with people having 8 acres and above forming only 0.51 % of the sample. Table 4.9 below presents this information.

Table 4.9 Size of land owned

Size of land	*Frequency*	*Percentage*
Less than 1 acre	97	25.25
Between 1 to 4 acres	254	66.16
Between 5 to 7 acres	31	8.08
Over 8 Acres	2	0.51
Total	**384**	**100**

Information in Chi-square Table 4.3 show that participation of farmers in soil and water conservation is independent of size of land (X^2=6.663 df=3 P value= 0.08327). This means that whether one has a big or small farm and individual may participate in soil and water conservation activity. Farmers will adopt SWC technologies that fit with their situations. This agrees with the study by Tenge (2005) in west usambara, Tanazania where different farmers adopted different types of technologies based on the diverse socioeconomic backgrounds.

4.4 Farmers' perceptions about implementation of community participation in soil and water conservation projects

This section seeks to establish perceptions on implementation of soil and water conservation projects in Lower Nyakach division.

4.4.1 Perceptions on how people participate in soil and water conservation projects

The study sought to find how community perceived their participation in SWC projects involved community in decision making in SWC activities. The findings are shown in the table 4.10 below.

Table 4.10 How SWC project involve community

How do SWC project involve the community	*Frequency*	*Percentage*
Community problem Analysis	43	7.39
Determine Intervention Priorities	54	15.10
Monitoring and evaluation	76	13.06
Providing feedback to extension officers	99	31.82
Carry out project interventions	180	49.34
Others (specify)	52	18.03

Multiple responses from 384 respondents

As presented in table 4.10, the respondent's perceptions on how SWC programmes involved them were varied. These included community problem analysis, determining intervention priorities, monitoring and evaluation, feedback to extension officer and carrying out project interventions. Information in Table 4.10 show that 7.39% felt that they participated in community problem analysis while 15.10% felt they participated in determining intervention priorities. A further, 13.06% felt they participated in monitoring and evaluation. Majority of respondents (49.34%) said perceived they participated in carrying out the project interventions and (31.82%) felt they participated in providing feedback to the extension agents. From the results, majority of respondents perceive they participate in carrying out project interventions and feed-backing to extension agents. Only a small percentage of respondents perceived they participated in problem analysis, Monitoring and evaluation as well as determining intervention priorities. Participation in problem analysis, determining intervention priorities and M&E are conceptualized as stronger forms of community participation. Carrying out project interventions and feed-backing to extension agents are conceptualized as weaker forms of participation.

Linking these results to the typology of participation discussed in literature review, it can be argued that perceptions of participation are more oriented towards carrying out the interventions with just a small percentage feeling that they are involved in problem

analysis and determining intervention priorities. Furthermore, focus group discussion indicated that majority view their involvement in these interventions is still limited to the first four levels. They participated by attending meetings, providing labour or contributions of some equipments and few of them in decision making processes which can be interpreted as 'passive participation', 'information giving', 'consultation', or 'participation as contribution' (Pretty, 1995; Oakley, 1991, Dale, 2004). Indeed, these forms of participation can also be described as types of 'weak participation' (Bretty, 2003) or even forms of 'non-participation' (Pretty, 1995).

4.4.2 Awareness of water and soil conservation interventions in Lower Nyakach division.

The study established that awareness about soil and water conservation in the study area was high. The findings show that 82.32% of the household heads knew about some kind of organization dealing with soil and water conservation. This shows that many of the households have high level of awareness about soil and water conservation as an issue within Lower Nyakach division. Only 17.68% household heads did not know any organizations dealing with soil and water conservation. A focus group discussion held with the study community showed a consensus that many organizations had undertaken SWC interventions in the area most people were aware about soil conservation efforts. As one participant in a focus group discussion put it,

> Many have come to us. They work with us and when they are finished with us they go and others come. I used to see them when i was a young man. You can see am an old man now. Nowadays we just watch them.

The verbatim gives an indication of numerous SWC interventions carried out in the past that have lead to community lack of interest in the soil and water conservation projects or some kind of fatigue. This is corroborated by a study by Clark (2003) which showed that community fatigue can occur if people are simply not interested in projects. It can also be attributed to lack of a perceived change that is attributed to previous projects. Thus when communities perceive that their previous involvement in a project had no impact on their situation they are less likely to participate in subsequent projects. This finding is supported by a study carried out by Adesina and Baidu, (1995) in Burkina Fasso which

showed that people participate in projects with expectation of impact and are disappointed when no discernible change is experienced.

Regarding awareness about organisations involved in SWC in the study area, majority of the respondents (62 %) were aware of VI-Agro forestry while (13.13%) were aware of NALEP. A further (7.57%) knew about LVEMP. Both NALEP and LVEMP are government agencies while VI Agro forestry is an international development organization. This finding show that international donor agencies tend to have more visibility than their government counterparts presumably owing to better incentives provided by international development agencies. This was confirmed further by a key informant from the Ministry of Agriculture that people tend to participate more in international donor activities due to tokens and other incentives offered to them by International Donor Agencies. Other organisations such as World Neighbours, VIRED, The Red Cross, Adventist Relief services, NEMA and WKIEMP were also mentioned and collectively accounted for (17.68%). This information is presented in table 4.11below.

Table 4.11 Knowledge of organizations dealing with Soil and Water conservation in Lower Nyakach division

Which organization do you know involved in SWC in Lower Nyakach division	***Frequency***	***Percentage***
Vi Agro forestry	237	61.62
NALEP	50	13.13
LVEMP	29	7.57
Others	68	17.68
Total	**384**	**100**

4.4.3 Perceptions about soil erosion as community problem.

The perception of soil erosion as a problem is deemed to be critical for participation in soil and water conservation. According to Tesfaye and Debebe (2013) the perception of erosion as risk to crop production and sustainable agriculture is the most important determinant in the adoption of conservation measure. Theoretically, the farmers who perceive soil erosion as a problem having negative impacts on productivity and expect

positive returns from conservation are likely to decide in favour of adopting available conservation technologies (Swinton and Gabremedhia 2003). Conversely when farmers do not acknowledge soil erosion as a problem, they cannot expect benefits from paticipating the erosion process. As can be seen in Table 4.12 only 6.06% perceived soil erosion as a great challenge. This indicates that majority of farmers do not find soil erosion as a priority. This finding agree with the finding of a study carried out in Tanzania by Hatibu et al (2000) which found majority of farmers did not perceive soil erosion to be a problem in the largely soil erosion prone villages. The finding also is in tandem with the findings of Mburu in Onyango *et al* (2002) whose study in Nyando basin found that soil erosion is a much less felt need. Mburu observes thus,

> Few people identify it (soil erosion) as a major problem yet we do know that it occurs in almost all cultivated areas in Nyando basin.

Households are more likely to participate in SWC when they recognize soil erosion as a problem. Perceiving soil erosion as a problem by farmers is an important determinant of conservation practice. According to Boyd and Slaymaker (2000) farmer's awareness of land degradation as a problem and SWC techniques as a solution is key in influencing household's decision to participate and invest in soil and water conservation. Moreover, undertaking soil and water conservation involve costs thus farmers are unlikely to invest in the interventions if they do not believe it is a problem or if they are not certain that it will lead to some beneficial change.

Viewed from an investment perspective, Wogyehu and Drake (2003) argue that farmers will not be interested to invest in soil conservation and bear the risk associated with it if they do not perceive significant threat posed on productivity due to soil erosion. Soil erosion affects the ability of land to support growth of crops. It reduces the inherent productivity of land, both through loss of nutrients and degradation of physical structure. This in turn may result in a rise in the cost of agricultural production or conservation. Understanding farmers' perception of soil erosion and its impacts is thus an important aspect in promoting soil and water conservation technologies (Chizona et al 2006). Additionally, soil erosion is an insidious and slow process therefore farmers need to perceive its severity and associate yield loss before they can consider participating in implementation soil and water conservation practices (Aga 2011). However, while

conceding that correct perception of soil erosion as a problem is necessary, Tesfaye and Debebe (2013) observe that it is not sufficient condition for farmers to willingly participate in soil conservation.

Table 4.12. Perception on challenge facing the community

What do you consider as greatest challenge	*Frequency*	*Percentage*
Food production	74	19.19
Availability of water	200	52.02
Fuel source	41	10.61
Soil erosion	23	6.06
Inadequate land	17	4.55
No grazing land	10	2.53
Others	19	5.05
Total	**384**	**100**

4.4.4 Perception towards community's roles and participation in soil and water conservation

The study showed that respondents had varied reasons for participation in SWC projects ranging from improving farm income, getting information, receiving aid from government and to receive some payments. Table 4.13 shows respondents reasons for participation. Although some of respondents (38.92%), related participation in soil and water conservation with improvement of farm income, almost a third of the respondents (28.11%) indicated they were interested in getting aid or payments from the projects as incentives. This was corroborated in Focus Group Discussion and is captured in the words of a female participant who remarked;

> I have many home chores to perform. I cannot sit on these committees and they don't give sitting allowance. When I go back home after a day long meeting my children will have nothing to eat.

These sentiments demonstrate that still a large number of farmers participate in SWC project with expectations of material incentives. This is in tandem with findings of

Waweru (2015) who found that material and financial benefits were the motivation for participation. Material incentives are often perceived as tangible rewards used to induce individuals to participate. According to Tang (2005) material incentives can effectively engage community to participate in projects. Furthermore, Focus Group Discussion also revealed that most people engaged in many livelihood activities and did not give much priority to activities of soil and water conservation projects since they did not offer financial benefits that would sort out their immediate needs.

Table 4.13 Reason for participation in soil and water conservation projects

Why participate in soil and water conservation projects	***Frequency***	***Percent***
To get access to information	140	38.92
To receive payments	31	8.65
To receive Aid from the government or project	70	19.46
To get more farm income	114	31.89
Others	4	1.08

Multiple responses from 384 respondents

4.4.5 Perception on who should be responsible for SWC matters.

The findings in Table 4.14 indicate that soil and water conservation was generally perceived as a government affair. Majority (47.72%) of respondents said provincial administration should be responsible for soil and water conservation. Only 14% of the respondents felt that individual farmers in the community should be responsible for soil and water conservation in the area. Table 4.14 below presents this information.

Table 4.14. Who should be in responsible of SWC

Who should be responsible for SWC	*Frequency*	*Percent*
County commission	221	47.72
Church leaders	42	5.08
Member of parliament	16	1.52
Local councilor	14	1.02
Individual farmer	83	14.21
Others	8	2.03
Total	**384**	**100.00**

The reasons given why County commission, formerly provincial administration were responsible were varied including having authority to force the community, having the resources and being on the ground.

The findings are corroborated by proceedings of a national workshop for extension officers organized by (PELUM, 2012) which pointed out that farmers perceived soil and water conservation as government projects. The participants noted that,

> Some farmers believe soil and water conservation are government projects. citing 1930's - 60's where the colonialists forced Africans to do terracing.

A study by Herweg (1993) found that conservation practices have mainly been undertaken in form of campaigns and quite often steered by government without involving farmers in planning process. This is further supported by Tiffen *et al* (1994) who stated that African famers viewed soil conservation as a punishment for disobedience of chiefs or evasion of paying poll tax. Moreover, the need for soil conservation was not explained to farmers, thus most farmers did not recognize soil erosion as a problem. It has also been argued that community resources such as water and soil are best managed by the people who use them rather than by government (Ostron and wayne,1990). Consideration of people's perceptions is thus an essential factor when making decisions on soil and water conservation. These findings imply that SWC projects should explore other forms of incentives which can motivate, promote and sustain SWC initiatives in Lower Nyakach division.

4.4.6 Community entry

The study sought to find out how SWC projects made their entry to the community in order to establish how community members perceive their relationship with the SWC projects. According to GOG (2002), community entry is the process of initiating, nurturing and sustaining a desirable relationship with projects with a purpose of securing and sustaining communities' interest in all aspects of the programme. The study established that projects entry was through a variety of ways such as the provincial administration, relevant ministries, community groups, church leadership and village leadership and mass media. The result is shown in Table 4.15. Majority, 65.66% of respondents said that the projects made community entry through the provincial administration. A futher18.69% of respondents said that project entry was through community groups while 6.57% mentioned relevant ministries such as ministry of agriculture or ministry of environment and natural resources. Only 4.55% said the entry was through the village leadership and a paltry 1.01% through church leaders. It was important to understand SWC projects entry points since as pointed by GOG, (2002) entry methods determine whether the projects gains community support and if there is a potential to engage and plan together.

Table 4.15 Community entry used by projects while implementing SWC

How do projects approach you when dealing with SWC?	***Freq.***	***Percent***
Provincial administration	252	65.66
Mass media	14	3.54
Relevant ministries	25	6.57
Community groups	72	18.69
Church leadership	4	1.01
Village leadership	17	4.55
Total	**384**	**100.00**

The respondents were further asked whether the methods of project entry were suitable. Majority (85%) of the respondents who cited county commission formerly, provincial administration as entry point felt that the entry through the provincial administration was not suitable. This was further supported by focus group discussion in which various

reasons were raised such as corruption in the provincial administration, use of outdated communication methods, nepotism, nepotism, inadequate information among the provincial administration staff on SWC and inconsistency in the reaching out to the community. This was captured by a key sentiment of a informant from one of the community who claimed thus;

> The chief does not inform everybody. We are not informed of plans. The chief just call us to provide labour and land.

Another informant also remarked,

> The chief and village elders select their friends to work with when there are incentives such as food for work.

Yet another claimed,

> The chief picks his friends and relatives when good projects come with incentives.

The above narratives indicate people's perceptions of SWC project entry behavior and also underscore the reservations that community people have on the use of county commission as project entry point. This views are supported by Obuya (2010) who argue that in the eyes of an ordinary Kenyan, the history of provincial administration personifies repression, dictatorship, impartiality and authoritarianism.

4.4.7 Can community alone manage SWC

Most of the household heads said that they felt that the community alone cannot deal with soil and water conservation methods. As indicated in Table 4.16, majority (80.3%) of respondents said that they did not think the community alone can deal with soil and water conservation. The respondents felt that the community cannot implement SWC alone due to poverty prevalent in the area, they also said that the community lacked the capacity and collective responsibility to implement SWC. They also stated that the community lacked the technical capacity and money necessary for implementing soil and water conservation practices.

Table 4.16 Can community alone manage SWC

Do you feel SWC can be implemented by the community alone?	*Frequency*	*Percent*
Yes	76	19.7
No	308	80.3
Total	**384**	**100.00**

In order to establish their perception about participation in soil and water conservation project, the study sought to find out if community was concerned about their participation. As shown in Table 4.17, majority of farmers 59.64% stated that the farmers should be concerned about their participation while 29.8% households indicated that the government should be concerned about communities participation of projects. A further 10.61% of respondents said that projects should be more concerned about community's participation in soil and water conservation projects. This results show that majority of community members feel that they should participate more in problems affecting them rather than outsiders.

Table 4.17 Who should be more concerned with community's participation in SWC

Who should be the most concerned about community's participation of SWC?	*Freq.*	*Percent*
Farmers	229	59.64
Project officers	41	10.61
Government	114	29.8
Total	**384**	**100.00**

Further, the study sought to investigate how farmers perceived participation in decision making in soil and water conservation projects. Figure 3 shows the results. Majority of the respondents 48% described participation in decision making in SWC projects as not easy. A further 18% perceived participation in decision making was very difficult. This results indicate that majority of community members perceive SWC projects as entities in which their input in terms of decision making is usually minimal.

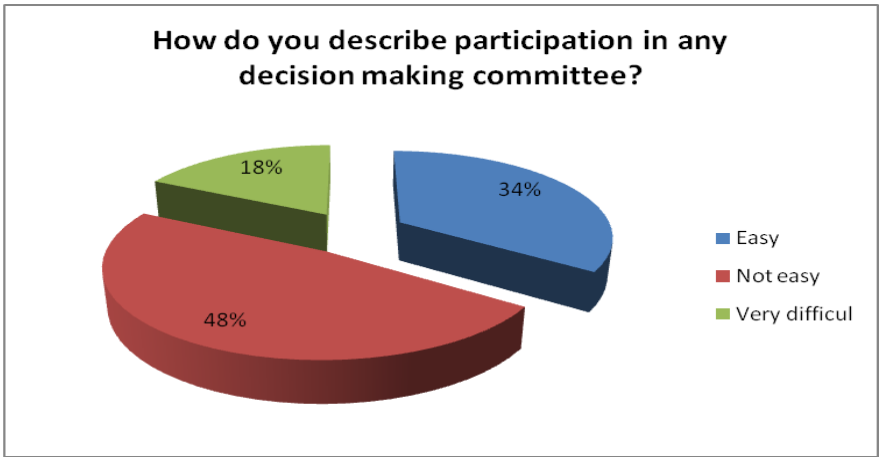

Figure 3. Participation in decision making committees in SWC

4.4.8 Benefits of participatory approaches in SWC projects

The study established that most of the households had attended soil and water conservation events organized in the division. The study further found that (51.01%) of the respondents had attended a soil and water conservation event organized in the division. The respondents explained that attendance to the soil and water conservation events was important because of reasons enlisted in the table 4.18 below.

Table 4.18 Benefits for participation in SWC events in the division

Benefits	***Freq.***	***Percent***
Helped me acquire knowledge and skills on SWC	105	27.27
Enabled me to exchange ideas and access to information on firm methods	91	23.74
It has made me improve the operations and the productivity in my farm	68	17.68
Improve my life and the community around me	60	15.66
It has enabled me participate in activities dealing with soil and water conservation	47	12.12
My participation was important in the events as it made the event successful	21	5.56

Multiple responses from 384 respondents.

From the study, majority of respondents had received training on soil and water conservation. It was observed that 54.04% respondents had received training on soil and

water conservation. Some 45.96% had not received any training on soil and water conservation as presented in Table 4.19 below.

Table 4.19 Training on SWC

Received training on SWC	*Frequency*	*Percentage*
Yes	208	54.04
No	176	45.96
Total	**384**	**100**

The study further sought to establish whether those who received or did not receive training were participating and implementing soil and water conservation interventions in their farms. The study showed that of the (54.04%) of the farmers who had received training on soil and water conservation 63% were practicing soil and water conservation in their farms and 27% did not. The farmers who did not adopt the technologies after having been trained cited various reason such as lack of financial resources and time as well as inadequate labour. On the other hand, only (16.8%) of those who had not received training were practicing soil and water conservation in their farms. Most of these farmers had learnt and adopted agro forestry technologies from their neighbours. However, as has been indicated above, the findings show that majority of farmers (54.04%) who received trainings had adopted soil and water conservation technologies. This finding is consistent with the finding of Tesfaye and Weldermariam, (2013) who observed that training which includes gaining knowledge on consequences of soil and water conservation measures were important variable governing decision making process in soil and water conservation. When farmers have the required skills and knowledge they are motivated to participate in soil and water conservation. Shahriar et al (2008) agrees that farmers with training in soil and water conservation are able to participate and manage soil erosion problems than those who do not have training. Further, he adds that knowledge gained through membership in soil and water conservation committees can help in soil and water conservation decisions.

4.4.9 Challenges faced by community in participation in SWC events

The study established that there were several challenges encountered by the community members participating in soil and water conservation. Some of the key challenges to

participation in SWC programmes included lack of incentives by the projects, lack of time, poor communication and lack of skills by many respondents on appropriate soil conservation technologies. These were corroborated by discussions during focus group discussion with community during the study. A female participant in a focus group discussion had this to say;

> I heard about the SWC from my neighbour who was planting some shrubs in his farm. When i inquired i was told that they were informed by the ministry of agriculture people at the 'baraza'. I am just a woman and i don't attend these barazas. I don't get any information about when this barazas are held. Besides, I have a lot of house chores to do.

Communication and access to information is important and essential for effective community participation. The sentiments expressed in the above narrative demonstrates lack of or poor communication of information in the community. It further insinuates that women particularly, do not have good access to information as these are passed in barazas where most women do not attend. This observation is supported by a study by Koech et al in Nandi who observed that public meetings 'barazas' are considered a male activity. This means that females get information from their male counterparts who may not necessarily pass the correct messages. Additionally, the high level of poverty as observed from the low income levels also influenced participation in soil and water conservation in the division. A key informant from the community observed that,

> We are preoccupied with finding something for the family to eat by end of the day and do not find it prudent to 'sit' in meetings from when you will come out empty handed.

The discussants pointed out from focus group discussions that formal and informal employments such as passenger bicycles commonly known as "Boda boda" and small scale retail trading that many people engaged in to earn some living left them little time to participate in SWC activities. An interview with a key informant from an international NGO working in Lower Nyakach division also revealed that many projects officers were not specifically trained on participatory approaches.

> For many of us when you talk of community participation, we can only go as far as we understand what participation means to us. Many of us have not been trained on participatory approaches. I can not afford to go for the trainings on my own as they are too expensive

Further, it was clear from interview with key informants from Ministry of Agriculture, local and international NGOs in the area that they were lacking structures in their organizations to foster effective community participation especially in decision making. Where such structures existed for instance, SWC committees or stakeholder forums, some key issues such as the type interventions or technologies to be adopted had already been predetermined by the projects leaving only the question of where the intervention will be carried out or how the programmes will be 'rolled out'. This finding is corroborated by Odira (2000) in a study which found that many development agencies tend to push their agenda for stakeholders to consume. A key informant from a development agency remarked.

> We need to be participatory in our organizations, in planning and management. We need to be more transparent in our affairs by identifying and involving beneficiaries in all aspects in our activities. This includes all those activities and processes that happen without them at the outset such as for example developing new ideas and initiatives and sharing budgets

From the above narrative it can be deduced that some NGOs have limitations as vehicles of participatory development. This is supported by a report by World bank (1996) which acknowledged that some NGOs have limited financial, technical and management and capacity for participatory development. Given such constraints some NGOs may circumvent participatory processes as since such processes require reasonable time and financial resources.

4.5. Adoption of soil and water conservation in Lower Nyakach division

4.5.1 Status of soil erosion in Lower Nyakach division.

The study established that the soil erosion problem was bad in the area. A huge number of respondents 80.3% o mentioned that the problem of soil erosion was bad. The results is

shown in table 4.20 below. This shows that majority of people in the community acknowledge that soil erosion is rampant in the study area.

Table 4.20 state of soil erosion

What is the state of soil erosion in this area in the past 5 years	***Freq.***	***Percent***
Bad	308	80.3
Good	45	11.62
No difference	27	7.07
Don't know	4	1.52
Total	**384**	**100.00**

The study further sought to find out if the soil erosion situation was improving or worsening in order to establish if previous interventions have had some positive impacts. As shown in table 4.21 majority 52.53% of household stated that the soil erosion problem in the area had worsened in the last 5 years. From the finding it is clear that soil erosion has largely worsened or remained the same over the years. This results demonstrate that past soil conservation efforts have not been quite successful. This finding is consistent with finding of Onyango *et al* (2002) in Nyando basin who observed that a historical pattern in Nyando basin has shown a consistent degradation over the last hundred years punctuated by severe worsening of these problems after El Nino.

Table 4.21 Change in soil erosion situation.

How has soil erosion changed in this area in the last 5 years?	***Frequency***	***Percent***
Improved	126	32.83
Worsened	202	52.53
Remained the same	50	13.13
Don't know	6	1.52
Total	**384**	**100.00**

Figure 4.0 below shows a larger segment of the respondents (83%) had not implemented soil and water conservation technologies in their farms. Only (17%) of households had implemented soil and water technologies in their farms. This would indicate that soil erosion situation had worsened over the years.

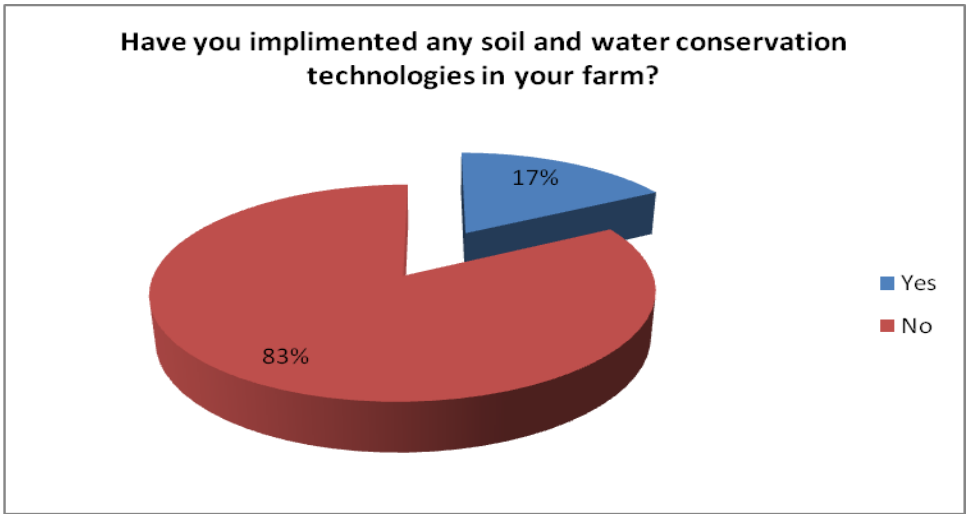

Figure 4.0 Adoption of soil and water conservation.

4.5.2 Adoption of soil and water conservation technology options by farmers

The study sought to establish the adoption of various technology options for soil and water conservation. The study revealed that the communities had adopted some soil and water conservation technologies such as terracing, agro-forestry practices, natural vegetative trips, bunds and water pans. Among the households that implemented soil and water management technologies, most of them implemented agro-forestry practices. Of the respondents that adopted soil and water conservation technologies, a majority (58.8%) implemented agro forestry techniques while (23.53%) used vegetative strips. A paltry (0.03) and (0.06%) implemented terracing and water pans respectively. Table 4.22 below presents this information.

Table 4.22 SWC technologies used by households

SWC technologies employed by households	*Freq.*	*Percent*
Agro forestry practices	226	58.8
Terracing	1	0.03
Natural vegetation strip	90	23.53
Water pans	2	0.06
Others	3	0.09

The popularity of agro forestry practices in this study could be attributed to the perception that agro forestry interventions offer multiple benefits to farmers in addition to conserving

soil and water. Agro forestry combinations are multipurpose in character and have a combination of (food) production and protection functions (Ffolliot and Brooks 1995, Ffolliot *et al*, 1996). Adding that while production of food, energy, raw material and cash outputs is achieved in agro forestry systems, environmental and sustainability benefits cannot be overemphasized. Furthermore, soil conservation technologies are readily adopted if they provide useful by products such as fodder, fuel wood, fruits and biomass that can be used in adjacent fields (Sanchez *et al*, 1997). Other reports indicate that soil and water conservation practices are most likely to be adopted when farmers see benefits in terms of increased production and incomes (Mburu *et al* 1997).

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The study sought to do an assessment of community participation in SWC in lower Nyakach division, Nyakach district Kenya. Specifically, the study sought to find out socio-economic factors that influence participation of farmers in SWC projects in Lower Nyakach Division, the community's perceptions about execution of participatory approach in SWC projects, the level of adoption of soil and water conservation technologies by farmers and to determine perceived benefits and challenges of the participatory approaches in SWC projects. This chapter presents the summary of the major findings of the study, the conclusion of the study, the recommendations and gives suggestion for further study

5.2 Summary

This study sought to identify the socio economic factors that influenced participation of farmers in SWC projects.

The socio – economic factors that were studied included; level of education, level of income, employment status, place of residence, ownership of land, size of land owned, training on issues related to soil and water conservation. The study established that level of respondent's income, the source income and having undertaken training on issues related to soil and water conservation influenced farmers' participation in soil and water conservation projects.

The study also sought to determine community's perceptions on participation in soil and water conservation projects. The finding showed that community participation was mainly on the levels perceived as weak forms of participation such as carrying out project interventions (49.34%) and providing feedback to extension agents (31.82%) rather than community problem analysis (7.39%) or determining intervention priorities (15.10%) perceived as stronger forms of participation. Furthermore, majority felt that the county commission formally provincial administration should be responsible for making decisions concerning soil and water conservation. Community members also perceived participation in decision making structures such as committees difficult. However community felt they had a role to play in SWC conservation. Despite the perception that

county commission should be responsible for SWC, it was riddled with poor methods of communicating SWC information, biasness, nepotism and lack of transparency that was associated with chiefs and village elders. Lack of participation structures by the SWC project agencies was perceived as a challenge to community participation. Additionally, lack of or inadequate training and skills in community participation techniques by the project staff undermined the effective application of community participation in reality.

The study established that farmers had adopted some soil and water conservation technologies including agro forestry, natural vegetative strips, terracing, water pans and bunds. The finding shows that adoption of soil and water technologies was quite low. The study revealed agro forestry interventions as the most adopted soil and water conservation technologies. This was due to the perception that agro forestry practices offered more benefits to the farmers.

5.3 Conclusion

Based on the findings the study came out with the following conclusions;

Income levels and sources of income whether on-farm or off- farm had influence on people's participation. Training of beneficiaries in SWC by projects rather than education level of the beneficiary has an influence on participation in soil and water conservation planning. Thus capacity building through training of beneficiaries is essential for creating awareness and promoting participation in soil and water conservation.

The study found that community participation was majorly perceived as weak. The study also concludes that soil and water conservation projects should empower the community to make decisions and prioritise the interventions for soil and water conservation. The agencies involved in SWC projects did not have structures to facilitate effective participation in the organizations.

Adoption of soil and water conservation technologies was low. However, of those who adopted soil and water conservation technologies, agro forestry was preferred.

5.4 Recommendations

From the study findings, the following suggestions could help to improve community participation. The suggestions have implications on policy, development planning and extension service. They include:

Projects should adopt approaches that improve farmers' incomes in addition to SWC interventions. This will provide incentive to farmers contribute in conservation processes. Capacity building through training of beneficiaries is essential for community participation in SWC. Soil and water conservation projects should ensure farmers acquire the right knowledge and skills. Additionally, SWC projects need to ensure that their programme staff receive specific skills to promote community participation.

The study recommends that there should be more participation by community members in determining their needs, prioritizing and choice of the technology interventions for soil and water conservations that they find beneficial to them.

5.5 Recommendation for further study.

The researcher recommended further study in the following areas:

1. Future research should explore impacts on how sources of income influences adoption of SWC technologies.
2. Future research should assess institutional structures in government and non-governmental projects for community participation in soil and water conservation projects.

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ANNEXES

ANNEX 1: QUESTIONNAIRE

For the Heads of Households

Section 1.Respondents Background Information

Household No. …… Location……

Sub-location …….Village …….

101. Sex 1. Male
2. Female

102. Age of respondent
1. Below 18
2. 19 – 24
3. 25 – 29
4. 30 – 34
5. 35 – 39
6. 40 – 44
7. 45 – 49
8. 50 – 54
9. 55 and above

103. Religion.
1. Catholic
2. Protestant
3. African Independent churches
4. Other (Specify)……..

104. Marital status
1. Single
2. Married
3. Widowed
4. Divorced
5. Separated

105. Type of marriage
1. Monogamous
2. Polygamous

106. How many people live in this household? ……

107. How long have you lived in this community.
1. Months – 1yr
2. 2 – 3 years
3. 4 – 5 years
4. 6 – 7 years
5. 8 – 9 years

6. Over 10 years.

Section 2. Adoption of Soil and Water Conservation (SWC) Technologies.

201. Do you feel you need any soil and water conservation technologies in you farm?
    1. Yes
    2. No

202. If yes, why do you feel so…..……
……
……

203. Are you or any of your family members currently implementing any soil water conservation technologies in your farm?
    1. Yes
    2. No

204. If you are currently implementing soil and water conservation technologies, what technologies are you implementing?
    1. Agroforestry practices
    2. Terracing
    3. Natural Vegetative strips
    4. Water pans
    5. Other (Specify)……

205. Whose initiative was it?
    1. Project Officers (Specify)……
    2. Neighbour
    3. Mine
    4. Other (Specify)……

206. If No, what are your reasons for not implementing soil and water conservation technologies……
……

207. Are there SWC programmes or conservation practices that you have heard about and/or are interested in?
    1. Yes
    2. No

208. If yes please mention them……..
……

209. What can you say about soil erosion problem in the last 5 years?
    1. Bad
    2. Good
    3. No difference
    4. Don’t know.

210. How is the situation now?
    1. Improved
    2. Worsened
    3. Remained same

4. Dont Know

211. Please explain your answer……..
……

Section 3.Socioeconomic conditions influencing Community participation in SWC projects.

301. What is your level of education?

1. No formal education
2. Incomplete Primary Education
3. Primary Education
4. Complete secondary education
5. College (tertiary)
6. University
7. Other (Specify)……..

302. What is your monthly income?

1. Ksh 1,000 and below
2. 1,001 – 3,000
3. 6,001 – 9,000
4. 9,001 – 12,000
5. 12,001 – 15,000
6. Above 15,000

303. What are your sources of income?

1. On farm sources
2. Off farm sources
3. Both on farm and off farm

304. Employment status

1. Self employed
2. Formal employment
3. Unemployed
4. Student

305. Are you a resident of this area?

1. Yes
2. No

306. How did you acquire land in which you live?

1. Bought
2. Inherited
3. On lease
4. Other (specify)……

307. Do you possess a title deed for your land?

1. Yes
2. No

308. What is the appropriate size of your land?

1. Less than 1 acre
2. 2 – 4 acres

3. 5 – 7 acres
4. 8 and over

309. Do you have any farm worker(s)?
1. Yes
2. No

310. Are you a member of committee or dealing in soil and water conservation?
1. Yes
2. No

311. If Yes, in what capacity do you serve
1. Member
2. Official
3. Other (Specify)……

312. If Yes, what criteria was used to select you?
1. Gender
2. Literacy
3. Disability
4. Volunteered
5. Other (Specify)…….

313. If No, do you feel represented?
1.Yes
2.No

314. Have you received any kind of training on issues related to soil and water conservation
1. Yes
2. No

315. If Yes, who organized the training(s)
1. Government(Specify)…….
2. Non-governmental organization(Specify)……..
3. Others (Specify)…….

316. In your opinion how are community members involved by projects dealing in soil and water conservation in this area?
1. Community problem analysis
2. Determine intervention priorities
3. Monitoring and evaluation
4. Provide feedback to extension workers
5. Carry out project interventions
5 .Other (Specify)…….

317. Do you feel young people are involved in soil and water conservation projects?
1. Yes
2. No

318. If Yes, do you feel they are well represented in decision making processes?
1. Yes

2. No

319. In your opinion what should be done to increase community participation in planning soil and water conservation activities?……..
…….....
……

Section 4. Community perceptions about community participation.

401. Do you know any soil and water conservation projects working in Lower Nyakach division?

1. Yes
2. No

402. If yes which ones do you know?

1. VI Agroforestry
2. NALEP
3. LVEMP
4. Other (Specify)……..

403. Do you feel that you have a role to play in the soil and water conservation projects?

1. Yes
2. No

404.If Yes, what do you feel is your role?.....
……

405. If No, why do you feel so? .....
……

406. If you are participating in soil and water conservation project, what does your participation mean to you?

1. Better access to information
2. Receive payment
3. Receive AID from Government or Project
4. Income
5. Others reason (Specify)……

407. In your view, whos opinion matters most on soil and water conservation issues in this area?

1. Provincial Administration
2. Church leaders
3. Member of parliament
4. Local Councilor
5. Individuals in the community
6. Other (Specify)……

408. What is your reason for your response in Q 411?

…….

409. How do projects approach the community in which they plan to carry out soil and water conservation projects?
    1. Provincial administration (Baraza)
    2. Mass Media
    3. Relevant Ministries
    5. Others (specify)…….
410. What do you think about this approach?
    1. Suitable
    2. Not suitable
    3. Don't Know
411. Do you feel the soil and water conservation can better be implemented by the community alone?
    1. Yes
    2. No
412. In your opinion what do you consider as the greatest challenge for this community?
    1. Production of food
    2. Availability of water
    3. Fuel
    4. Soil erosion
    5. Lack of land
    6. Floods
    7. No grazing area
    8. Other (Specify)……..
413. Do you feel soil and water conservation projects are addressing this problem?
    1. Yes
    2. No
414. Who should be most concerned about community participation in projects
    1. Farmers
    2. Government
    3. Project Officers
    4. Other (Specify)…….
415. In your own assessment how would you describe opportunity to participate as a member of any decision making committee for soil and water conservation?
    1. Easy
    2. Not easy
    3. Very difficult
416. Do you believe the issue of community participation is being properly addressed by the SWC projects
    1. Yes
    2. No
    3. Somehow
    4. Dont Know
417. Why do you say so? .....
……..

Section 5. Perceived benefits and challenges of community participation in soil and water conservation.

501. Have you participated in any soil and water soil conservation event in this Division?

1. Yes
2. No

502. If Yes, briefly comment on this event ……...
……..

503. Who organized this event?

1. Provincial administration
2. Project or CBO(Specify)……,
3. Other (Specify)……

503. Do you feel your participation in this event(s) was important to you in any way?

1. Yes
2. No

503. If Yes, can you briefly explain …….
……..
…….

504 If No in Q501 have you had interest to participate in any way in soil and water conservation projects?

1. Yes
2. No

505. If Yes, please explain what has barred you from participating……..
……..

506. Do you know of any member of the community participating in any soil and water conservation committee in this area?

1. Yes
2. No

507. If Yes, how was the person selected?

1. Elected
2. Nominated
3. Other (Specify)……..

508. Would you wish to participate in such committee?

1. Yes
2. No

509. If Yes Why? .....
…….

510. If No, why do you say so……

511. In your considered view what difficulty do you feel are there that discourage participation of community members in soil and water conservation efforts?

1. Lack of incentives by the projects(Specify Perceived incentive)…….....
2. Lack of time
3. Lack of information
4. Other?(Specify)……

512.Comment on your answer above……

ANNEX 2: INDEPTH INTERVIEW GUIDE WITH KEY INFORMANTS.

Section 1. Adoption of Soil and water conservation (SWC) technologies.

1. What was the soil erosion situation before the projects soil and water conservation in this area?
2. How is the situation now? Comment on the present soil and water conservation situation.
3. What is the range of soil and water technology options in your programme at community level?
4. Briefly explain how these ranges of options have been adopted.
5. How does this range of technology options compare with what the local people need or are able to adopt?
6. What are the ways for addressing these needs?
7. Are participatory approaches having their intended effects? Please explain briefly.

Section 2. Socio-economic factors influencing community participation.

1. Do you have structures (e.g. Community committees) in your organization for community participation? Comment briefly
2. What criteria does the project use to identify members to participatory structures that you have in place?
3. Youth, women and other vulnerable groups generally face specific exclusion problems in regard to participation, does you organization have any mechanism for addressing needs of such groups?
4. Do you have organization policies to facilitate effective community participation?
5. Please explain briefly.
6. Do you keep records of community engagements? (Check the records if available)
7. Please mention any social or economic issues that you feel are affecting community participation in your soil and water conservation project.
8. In your view how can these issues be overcome.

Section 3.Perceptions of community members in planning and execution of community.

1. Briefly describe how the project made entry into this community for SWC interventions.
2. What were/are the community's expectations
3. How do these expectations compare with the projects policies and implementation plan?
4. What arrangements does the project use to ensure people participate in decision making regarding soil and water conservation.
5. Are you or any of your colleagues trained in participatory planning methods such PRA? Provide details.
6. What do you consider as key aspects of effective community participation?
7. From your experience of participatory approaches what have you learned as regards community participation in general?

Section 2. Perceived benefits and challenges of community participation in soil and water conservation

1. What is your organization's interventions approach to soil and water conservation in this area
2. What are your reasons for using this approach?
3. Do you feel your projects approach is delivering desired outcomes? Explain briefly
4. Please highlight any key participatory issue that has impacted on farmers ability to participate in soil and water conservation.
5. Mention any difficulties or challenges you have experienced in using participatory approaches to soil and water conservation.

ANNEX 3: FOCUS GROUP DISCUSSIONS

With Chiefs, Youth and women groups

A. Adoption of soil and water conservation (SWC) technologies.

1. Soil erosion situation in the past and the situation now
2. Current adoption of soil and water conservation technologies
3. Soil and water conservation options for the community.
4. Who makes the final decision?

B. Socio-economic conditions influencing participation of community in soil and water conservation

5. Who should participate in designing, planning and execution of SWC?
6. Criteria or methods used by projects to identify community members to participate in committees? (Obtain views about these criteria or methods)
7. Inclusiveness of all stakeholders particularly vulnerable groups

C. **Perceptions of community members on community participation.**

8. Roles of community in soil and water conservation
9. Explore who should make decision on soil and water conservation?
10. If they want to participate in planning SWC ,How and who should participate

D. Perceived Benefits and Challenges of community participation.

11. General view regarding people's participation in SWC projects.
12. How community can gain by effectively participating in SWC projects.
13. Any challenges in ensuring community involvement in SWC projects.

ANNEX 4: OBSERVATION CHECKLIST

Household No…… Location ……. Sub location ……..
Village……

Soil and water conservation technology	**Tick if available**	**Remarks**
1.Agroforestry trees or shrubs		
2.Hedgerows		
3.Terraces		
4.Trash line		
5.Stone lines		
6.Drainage canals		
7.Water pans or any other water storage or conservation structure(Specify)		
8.Others (Specify)		