INFLUENCE OF COMMUNITY INVOLVEMENT ON SUSTAINABILITY OF RENEWABLE ENERGY PROJECTS IN NAKURU COUNTY: A CASE OF SUSTAINABLE COMMUNITY DEVELOPMENT SERVICES (SCODE)

IRENE WANJIKU KAGO

Research Report Submitted in Partial Fulfillment of the Requirements for the Award of Degree of Master of Arts in Project Planning and Management of the University of Nairobi

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DECLARATION

This research project is my original work and has not been submitted for any academic award in any other university

Signature…… Date…….

Kago Irene Wanjiku

L50/82887/2015

This research project has been submitted for examination with my approval as the University supervisor.

Signature…….……. Date……

Dr. Mercy Wambui

Open and Distance e-Learning (ODeL)

University of Nairobi

DEDICATION

I dedicate this project to my son Liam, husband , my parents and siblings for their support and encouragement.

ACKNOWLEDGEMENT

I would like to sincerely appreciate my supervisor Dr. Mercy Wambui for her guidance and support during the preparation of this research project. I would also like to acknowledge my fellow colleagues and SCODE team for their encouragement during the research project period. They played a great role in the completion of this report.

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ABBREVIATIONS AND ACRONYMS

CBOs	Community Based Organization
CIP	Community Involvement Plan
EAETDN	East African Energy Technology Development Network
EDG	Enhanced Development Governance
IFAD	International Fund for Agricultural Development
NACOSTI	National Commission for Science, Technology and Innovation
NGO	Non-Governmental Organization
SACDEP	Sustainable Agriculture Community Development Programmes
SCODE	Sustainable Community Development- Services
SPSS	Statistical Package for Social Sciences

ABSTRACT

Community involvement in a project right from the design to evaluation is important especially in promoting community acceptance of the project. The purpose of the study was to investigate the influence of community involvement on sustainability of renewable energy projects in Nakuru County: A case of Sustainable Community Development Services. The specific objective of the study was to establish the influence of community involvement in project design on sustainability of renewable energy projects in Nakuru County. To examine the influence of community involvement in project implementation on sustainability of renewable energy projects in Nakuru County. To determine the influence of community involvement in project monitoring and evaluation on sustainability of renewable energy projects in Nakuru County. To assess the influence of community involvement in need analysis on sustainability of renewable energy projects in Nakuru County. A descriptive survey design was used on a total number of 610 representatives from women groups, Echariria and Lemolo CBOs, users/customers, entrepreneurs and employees of Scode were targeted. A formula by Kothari (2004) was used to determine a sample size of 235 respondents. The study made use of primary data which was collected using a structured questionnaire and focused group discussion guides. The tabulated data was analyzed using descriptive and regression statistics. The researcher found out that project implementation had the highest influence on sustainability of renewable energy products followed by project design, project monitoring and evaluation and lastly need analysis. The county focused on the goals of the project that were tied to community needs and expectations. Project implementation in the county ensured delivery of the espoused benefits to project beneficiaries. The organization involved process management in project development. Monitoring and evaluation were carried out on a regular basis in their organization. Involving locals from the community in project execution facilitated the process of M & E in the county. Community and customer needs analysis helped the organization to gather information that was useful in meeting gaps of the community. The study recommends that policy makers in the county ought to focus on the goals of the project that are tied to community needs and expectations. The county ought to involve process management in project development. Policy makers ought to ensure that the project implementation in the county delivers espoused benefits to project beneficiaries. Top management ought to involve locals from the community in project execution to facilitate the process of M & E in the county. Top management ought to allow local participation in monitoring and evaluation for attainment of project deliverables. The community ought to be involved in need analysis to contribute to possible solutions to the problems identified and help the county to meet local priorities in the most effective way.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The design and implementation of projects is guided by predeveloped targets in the form of goals. The various activities performed in the phase of implementation need to be well coordinated such that from the beginning to the end are geared towards delivering the set goals with the limited resources and on a timely manner (O'Brien & Joseph, 2014). The monitoring and evaluation of projects vary from one project to another as some projects call for sustained activities over time for continued availability of inputs while others may demand that the provision of inputs be phased. In some projects, the achievement of set goals and objectives are influenced by the prevailing cultural settings and economic situations (Seyfang & Longhurst, 2016).

1.1.1 Community Involvement

Baquedano, Rebecca and Sera (2015) argued that involving the community which is the ultimate target beneficiaries in a project right from the design to evaluation is important especially in promoting community acceptance of the project. It is arguing that failure to involve the community in all phases of projects results unlimited community buy-in which may result in complete project paralysis as the project may never be accepted even if it were to be swiftly implemented (Fan, 2014). Involving the community provides an opportunity to the residents to solicit more information on affairs of the project hence they become more informed and can actively participate in decision making to improve the welfare of the community (Silvius, Köhler, Schipper, & Planko, 2012). They are in a position to make quality decisions which lead to higher utility for the community. Therefore, project sustainability forms one of the key aspects of getting information on the project to the grassroot for the development partners. This forms a key pillar in community-based projects designed to benefit any particular community (Brooks, Waylen & Mulder, 2013).

1.1.2 Renewable Energy

Renewable energy can in general terms be defined as energy that can be derived from resources which are naturally replenished on a human continuance, for instance sunlight, biogas, wind, hydropower, tides, waves and geothermal heat. Renewable energy sources can substitute conventional energy sources in four distinguishable areas: electricity generation, hot water/space heating, motor fuels, and rural (off-grid) energy services (Wikipedia, 2014). Approximately 80 % of all energy consumed in the world is utilized by the first twenty large economies commonly referred as G20 in 2010 (Schmidt and Haifly, 2013). According to this statistic this group of countries is important in shaping renewable trend since this is where most energy demands are happening. Overall about 16% of world energy consumption comes from renewables; with 10% from traditional biogas, used majorly for heating and about 3.4% from hydroelectricity. New renewable energy sources including small hydro, modern biogas, solar, wind, geothermal, and bio-fuels contribute about 2.8% (UNEP, 2011).

1.1.3 Sustainability of Projects

Sustainability is realized whenever there is continued benefit to the target beneficiaries over and beyond the project period which normally goes beyond the time that the donor avails resources to support the project (Silvius, Köhler, Schipper, & Planko, 2012). A project is said to be sustainable in the short term whenever its activities lead to continued benefits to the community for at least three years once the project life has been reached. Sustainable development is a process that is very dynamic as it has evolved with changes in the manner in which needs of current and the generations to come are met (Scoones, 2017).

1.2 Statement of the Problem

Projects are deemed to be sustainable if they can be able to effectively meet set needs by benefiting population without placing any threats on the ability of future generations to meet their needs from the same projects. Project sustainability is a key predicament since most organizational projects stall after a short duration of time. Most implemented organizational projects require huge amounts of money in order to ensure the attainment of project goals, however, when external funding ceases, it leads to sustainability challenges (Auya & Oino,

2013). Poor sustainability of projects therefore deprives beneficiaries returns expected from these investments (Luvenga et al., 2015). Community participation in projects has been identified as one of the critical factors that influence sustainability of renewable energy projects. Statistics advanced by Ababa (2013) indicate that total support in the form of aids to Kenya stood above $750m by the year 2005. This figure has been growing with passage of time as the finances advanced have been supporting a number of projects aimed at development. Shirin, Mwele, Kijakazi, Donohue, Mubyazi and Edwin (2016) carried out a study on the role of community participation for sustainable integrated neglected tropical diseases and water, sanitation and hygiene intervention programs in Tanzania and found that Enhanced Development Governance (EDG) model as associated with a statistically significant reduction in the prevalence of schistosomiasis and diarrhea, and has led to an increase in awareness of WASH interventions for sustaining gains in NTD control.

Though the renewable energy sector is not relatively new, its growth in the country is at a low pace as compared to the other developing countries. Deficiency of market analysis has in many cases hampered the uptake of product development (Wanjiru and Ochieng, 2013) as shown by poor market understanding regarding stakeholder mapping, technology mapping and promotional schemes. High costs of products often lead to market stagnation further discouraging the technology uptake (Love, 2014). Currently in Nakuru, most renewable energy systems technology is available although market penetration is notably low and existence of these technologies is rarely known by potential users (Mwakubo et al., 2007).

Most of the studies were done in different contexts including education sector and agricultural sector. None of the studies focused on community involvement and sustainability of renewable energy projects in Nakuru County. This creates gaps that the current study seeks to fill. Thus, the researcher sought to examine the influence of community involvement on sustainable utilization of renewable energy projects where the context of focus was SCODE in Nakuru County.

1.3 Purpose of the Study

To determine the influence of community involvement on sustainability of renewable energy projects in Nakuru County: A case of SCODE.

1.4 Objectives of the Study

The following made up study objectives:

i. To establish the influence of community involvement in project design on sustainability of renewable energy projects in Nakuru County
ii. To examine the influence of community involvement in project implementation on sustainability of renewable energy projects in Nakuru County
iii. To determine the influence of community involvement in project monitoring and evaluation on sustainability of renewable energy projects in Nakuru County
iv. To assess the influence of community involvement in need analysis on sustainability of renewable energy projects in Nakuru County

1.5 Research Questions

The research questions to be answered by the study comprised of:

i. What is the influence of community involvement in project design on sustainability of renewable energy projects in Nakuru County?
ii. How does community involvement in project implementation influence the sustainability of renewable energy projects in Nakuru County?
iii. What is the influence of community involvement in project monitoring and evaluation on sustainability of renewable energy projects in Nakuru County?
iv. How does community involvement in community need analysis influence the sustainability of renewable energy projects in Nakuru County?

1.6 Significance of Study

This study would be of significance to the community, donors, policy makers, researcher and the government. Findings from this study can be used by other NGOs, CBOs, Other stakeholders involved in implementation of projects, bodies and agencies providing financial aids and the government to address sustainability challenges, and in planning better ways of implementing sustainable community projects.

Lessons drawn from this study would be used to inform policy debates on participation-sustainability nexus as well as influence policies on community participation in renewable energy development projects. These policies may be at the community, organizational or national level. Involving communities in the planning, implementation, maintenance and evaluation of projects implies that a new closer relationship would have to be established between the government /donors and the end users of the projects.

This study adds to literature on the subject of community participation and renewable energy projects sustainability in Kenya. Academic researchers, scholars and research organizations may find this study useful as it might provide them with information as well as assist in identifying gaps for further studies.

1.7 Limitations of the Study

In conceptual terms, this study was limited to the effects of project planning/ design, project implementation, project monitoring and evaluation and community needs analysis on sustainable utilization of community projects. Contextually, this study was limited to sustainability of renewable energy projects in Nakuru. It was limited to influence of community involvement on sustainability of renewable energy projects in Nakuru County. The target population of this study comprised of the surrounding entrepreneurs, project managers and the end-users (customers) in Nakuru. The study was carried out in a period of two months starting October to November 2018.

1.8 Assumption of the Study

First, the sample represented the influence of community involvement on sustainability of renewable energy projects in Nakuru County. Secondly, the respondents of the survey answered the questionnaires truthfully. In addition, the respondents cooperated and provided factual and truthful responses to the questions included in the research instrument. It was also projected that the respondents were available to provide responses on a timely basis. The researcher further hoped that the population did not change significantly as such changes would include increment or decrease in the target population when doing reliability test as well as distribution in the various categories under consideration.

1.9 Definition of Terms

Community Involvement – this is the power to bring positive, measurable change to both the communities in which the project is been done.

Need Analysis - Beneficiaries are involved in the formal process focus on how a product addresses the needs of a human.

Project Design – This is a stage in project where the key features, structure, criteria for success and major deliverables are all planned out for project.

Project Implementation – Beneficiaries are involved in the coming up of visions and plans of project.

Project Monitoring and Evaluation - Beneficiaries helps improve performance and achieve results with the sole purpose of improving the existing and future outputs from management teams, outcomes and project impact.

Renewable Energy- is energy that is collected from renewable resources, which are naturally replenished on a human timescale, such as sunlight, wind, rain, tides, waves, and geothermal heat.

Sustainability of Renewable Energy - evaluation of renewable energy project

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter looks into relevant literature related to community involvement in different phases of a project and its influence on sustainable utilization. It discussed the concept of project sustainability as well as that of community involvement, with clear focus on community involvement in project planning, project implementation, project monitoring and evaluation and need analysis in relation to sustainable utilization of community projects. The chapter also developed a framework capable of evaluating the relationship between community involvement and project sustainability in the context of community-based projects.

2.2 Sustainability of Renewable Energy Projects

A number of definitions have been advanced by various scholars on the subject of project sustainability. The International Fund for Agricultural Development (IFAD) Strategic Framework (2007) defines it as the ability to ensure that the various institutions illustrated through projects together with the benefits drawn from the said project continue to be realized beyond the stipulated project financing period (Keeble, Topiol and Berkeley, 2013). Emphasis is placed on the concept of project functionality over a period of time after the financing period has come to an end. It is a state in which the target project beneficiaries are able to assume responsibility of making sure that people in the current and future generations enjoy the benefits of the project through sustenance of its processes, income human capacity and other advantages that accompany the project (Bell & Morse, 2013).

Renewable energy projects have been promoted for rural electrification as an answer to the growing energy needs of communities while simultaneously satisfying environmental and resource scarcity problems (Terrapon, Dienst, König & Ortiz, 2014). The subject of project sustainability of renewable energy has been contentious in many developing countries as the benefits from a project in most cases do not get felt over extended period of time to justify the social and economic inputs invested. A project is said to be sustainable only if the targeted

beneficiaries who includes the community are in a position to continue enjoying the benefits of the project without any assistance of external partners or stakeholders (Luvenga et al., 2015).

Sustainability of renewable energy projects is shown through the capacity possessed by the community to deal with the changes and align to the changing environment (Williams, 2013). It is necessary to note that projects viewed as requiring sustainability today may not enjoy the same status in future regardless of the amount of resources used in developing and maintaining it (Troldborg, Heslop & Hough, 2014). This is especially projects targeted to specific age groups like youths and families where little information is available. This is attributed to limited understanding of what constitutes project sustainability especially among community members.

2.3 Community Involvement in Project Design

Setting goals helps us fuel our ambitions and makes us believe that we can do and achieve our future objectives (Loock, Staake and Thiesse, 2013). Setting goals makes one have mental boundaries. In project planning, focusing towards a goal helps one keep away from unnecessary distractions and achieve the set objectives. Goals are very essential because they give direction and promote enthusiasm. Dahlgaard, Chen, Jang, Banegas and Dahlgaard-Park (2013) states that having developed plans, schedules and clear goals makes one achieve what he or she wants to do. Achieving a goal requires someone to set some o objectives because one becomes accountable to finish the task. Setting individual and collective goals in class would imply that one is aware of the way forward hence making it easier to perform the required tasks accurately.

Capital contribution is an essential key factor when developing a project more so when involving the community. This contributes to the development and success of many projects including the attitudinal success most likely where the project enhances or leads to creation of social capital. It also promotes active participation among the community members. This is seen when benefits are distributed equally without elite capture and when people come together to participate in project establishment, initiation and daily management. Community

involvement also leads to behavioral success (Liu, Eng and Ko (2013). This comes as a result of investing the project in the building capacity of local individuals and institutions. The project needs to contribute positively, respect the traditions of the community and governance of the institutions that are in place at the time. This would promote a sense of equity and eventually lead to ecological success in the community.

In general, involving the community in project design lead to success of the project (Epstein, 2013). Designing a project contributes to capacity building and also generates community's engagement. According to Smith, Leahy, Anderson and Davenport (2013), Community Involvement Plan (CIP) is generated and designed so as to help in providing the public with understandable, timely and accurate information that would help in implementing the project as time goes by. Community Involvement Plan also offers the community with the opportunity to contribute through significant input. The project plan provides an understanding to the people of the community and ensures that the community plays a good role in the entire process of the project. The foundation of community-based developments initiatives is the active involvement of members of the community.

Although, participation can occur at many levels, the key objective is incorporating local knowledge into the project's decision-making processes. Gurgun, Zhang and Touran (2013) confirms that when designing the project, project managers should focus on getting public input and provide information on decisions that have the positive impact on the community. Project participation leads to better targeted benefits, timely delivery of project inputs, designing of better projects and cost effectiveness. Project planning also involves needs assessment which is often used for the improvement of organizations, individuals and the project itself (Burke, 2013). It is also a useful tool when it comes to clarifying problems and identifying appropriate solutions in the community. When a problem is clearly identified, the necessary resources can be directed towards the development and implementation of the required solution.

However, when appropriate data is gathered, the process of developing a product that would address the needs and wants of a particular group of people becomes easier. Goettelmann, Dahman, Gateau, Dubois and Godart (2014) stated that the effectiveness of the need's

assessment becomes more effective when they are ends-focused. It is always important to carry out a needs assessment before planning a development work. Also, for a project to be completed successful, the goals and targets of the project must be tied to community needs and expectations. It should be noted that a needs assessment becomes crucial in the initial stages of developing a project. The crucial part of the goals of needs assessment is to identify the assets of a community and the problems that are being faced within the community (Richter, 2013).

2.4 Community Involvement in Project Implementation

Project implementation refers to the operationalization of developed project plans. It is the process of putting into action the plans so as to ensure delivery of the espoused benefits to project beneficiaries. Project implementation is essential because it helps operationalize the ideas formulated. Projects that are driven by the community are easily interpreted by reducing information problems and outlining the development priorities directly from the target community (Baskerville, 2013). This enables the communities to have time in identifying projects and the recipients who are eligible for private benefits thus making it possible to expand the available resources to the poor and enhancing the civic capacities of the communities. This made possible through nurturing of organizations that present the local people in the community.

It should be noted that the development of any particular project should be emphasized on the empowerment and involvement of the community itself including the mobility of resources. According to Hou and Zhang (2013), community driven projects contribute largely towards the development and sustainability of the community in general. One of the advantages of community driven projects include the possibility of reversing of power relations in a way that leads to creation of agency and the voice of the poor people. This creates more room that allows them to have much participation towards the project development. The targeted poverty programs should be developed so as to help in improving the allocation of funds that are very essential in developing the project.

Involving process management in project development is very crucial as it enables the community to discover and analyze their strengths and weaknesses before developing the project. Community developments rely on the local people who use their capital to organize and participate in the processes of developing the project (Berkes and Ross, 2013). Therefore, it is easy to know how participation of the community in provision of resources is implemented. The managers in charge of the projects always have limited amounts of money that is used in the execution of the project. The amounts vary depending on the time taken for completion and the project's size. When project managers engage communities in the projects, the issue of trying to meet all community needs can be avoided (Stigka, Paravantis & Mihalakakou, 2014).

A good project manager should be ready to listen to what people say and explore other options to get the job done very quickly. The manager should also plan well how to use the available resources and should be willing to take advantage of new opportunities that may arise. According to Campbell, Nhamo, Scott, Madanhire, Nyamukapa, Skovdal and Gregson (2013) community conversations that are of success leads to the creation of enjoyable learning and participation throughout the whole project. It should be noted that when participating in project development, the community should be trained so that they can become comfortable with the project. It is also important to be flexible, identify the priorities, involve everyone in the community and build ways for checking the progress of the project. Also taking time to reflect before starting any project and using the information to adjust what you are doing is very important.

2.5 Community Involvement in Project Monitoring and Evaluation

A good project should deliver best services to the community involved. Community participation brings out the sense of ownership for the development process and the International organizations like NGOs have accepted that community involvement is a crucial instrument when developing a project (Bedell, Coster, Law, Liljenquist, Kao, Teplicky and Khetani, 2013). It is through community participation that the local people are empowered to make decisions that always affect them directly in their lives. Community participation ensures that there are sustainable developments and that people are informed about their work.

Active community participation is a major key factor that builds a strong and responsible community.

Before developing a project, the community should be consulted so as to identify the benefits to be adopted. Involving local people in developments that are aimed at improving the living standards in many communities has become rare and this does not allow the community members to participate fully towards the development of a project. Reider-Gordon, Funk, Ewelukwa and Feldman (2013) ascertain that when local people in the community are involved in the project execution, monitoring and evaluation of the projects becomes easier. It is not hard for community people to know their problems and also the necessary solutions that may be implemented to curb the problems hence making the project to be implemented and executed very fast.

Community members are better placed when it comes to monitoring and guiding their projects more so the ones that took part in the development process (Brofeldt, Theilade, Burgess, Danielsen, Poulsen, Adrian and Kurniawan, 2014). For monitoring to take place, there must be projects that need to be implemented. Before the monitoring process takes place, the community members should be led on how to produce action plans that would function as an encouraging tool for engaging in self- help projects and contain their development needs.

For the information to be gathered, analyzed and interpreted, a local Management Information System needs to be set up within the community (Hoppe and Schmitz, 2013). For this system to be implemented, some of the local facilitators should highly trained on how to gather information. The use of Management Information System should be a continuous process throughout the entire process of the project development. Dooris and Heritage (2013) confirms that it is always essential to empower the local people and equip them with knowledge so that community monitoring and evaluation can achieve its purpose accordingly.

However, the methodology to be used should be simple and easy to understand for the local people in the community to adopt it. The partners who are implementing the project should work hand in hand with the local community and also, they should define their roles appropriately. According to Ge, Song and Gao (2013), the Monitoring and Evaluation process

should be explained to the local community as to why it is very crucial when developing and implementing the project. All data that is collected during the entire process of project development is very crucial and hence it should be arranged, analyzed and interpreted appropriately by developing a report that would clearly outline the details.

2.6 Community Involvement in Need Analysis

During project development, it is important to include the local people in identifying the project because Community Needs Analysis focuses on assessing the current and future needs of the community so as to target future directions that would help in meeting local priorities in the most effective way considering the availability of the resources that are present (Flowerdew, 2013). When handling demographic trends and council's population, it is important to consider the degree of remoteness and isolation, population ageing and population decline. The proposed methodology that helps accomplish Community Needs Analysis is based on conducting strategic planning. According to Johnston and Bate (2013), strategic planning involves identifying and developing plans to achieve set goals and objectives.

Community Needs Analysis helps in gathering information that is useful in meeting gaps of the community, demographic changes of the community, parental needs and preferences that are related to services of the community. When undertaking any analysis, it is always necessary to outline new ideas and make changes to your project. Carinci, Benedetti, Klazinga and Uccioli (2016) states that outlining the new ideas helps in collecting data and developing creative ways of handling the problems that may arise during development of the project. When conducting community needs analysis it is important to involve the community in general as the first priority so that they can contribute to positive ideas and possible solutions to the problems identified. Various steps are considered when conducting community needs analysis including; defining the scope of the analysis, collecting information and data, determining the findings and lastly setting goals and coming up with an action plan (Hoppe and Schmitz, 2013).

When defining the scope of analysis, it is first important to clearly identify the issue to be analyzed and the questions that would be answered (Guerrini, Romano & Campedelli, 2013). Information and data are very useful in any project development and a wide source of data should be considered so as to help in gathering enough information. After one has collected and gathered the necessary information it is always important to come up with the findings. The major findings can be categorized depending on the scope of the study that is being taken. Lastly after coming up with the finding, it is important to identify specific needs and issues to be addressed hence making it easier to set target goals and objectives.

People within the community always come from different backgrounds with unique cultures and customs. Spence and Liu (2013) states that when performing Needs Analysis, it is important to involve the community at large so that a wide range of ideas and wisdom can be utilized fully towards formulating solutions to the identified problems. This is critical because it helps in assessing the needs of the community and strategizing areas that need improvement. It is always necessary to know and understand different cultural groups within the community and how to work best with them when it comes to solving issues that are faced by the community.

2.7 Theoretical Framework

A theoretical framework describes the theories that this study was anchored on, which are the Sustainability Theory and the Stakeholder Theory. These theories were used to support the study.

2.7.1 Sustainability Theory

Sustainability theory was developed with the aim of evaluating the social, economic and environmental viability of a given project beyond the funding period. The theory is founded on the premise of economic theory developed by Malthus (1766) and Ricardo (1772). The scholars argue that resources in our environment are finite (White, 1996). The concept of sustainability is more focused on people being in a position to maintain and sustain the project or programme outcome through utilization of their own resources and assets to enjoy the

benefits of a project without compromising enjoyment of such benefits to the future generation (Beata, 2014).

The need for sustainability in projects has become an issue in the current world setting because of the desire to improve the living standards of a given population. Majority of the projects are started with the aim of uplifting the living standards of a given target population over unforeseen future through funding which is limited to a certain period. Since projects are started for the benefits of the community, it is important that project financiers assess the capacity of the community through involving them in every step of the project so as to make informed judgments on the probability of sustaining such projects once started (Nyaguthii & Oyugi, 2013). The theory argues that one of the key determinants of project sustainability is the community's capacity to manage a project. In cases where the capacity is low, project financiers may consider investing capacity building to ensure that the community understands the management aspects of the project. This theory holds that project managers need to be ready and willing to manage change process in the community into buying into a given project. This involves attitudinal changes which may bring about resistance.

This theory was relevant in this study because it aimed at evaluating the social, economic and environmental viability of a given project beyond the funding period and the contributions of the community towards the development and implementation process.

2.7.2 Stakeholder Theory

This theory was advanced by Freeman in 1984. The theory was however originally detailed by Mitroff (1983). The theory raises relationships and the ripple-effect of a company and its many stakeholders. It strives to address values and morals in management of an organization. Stakeholder theory identifies key people including shareholders, suppliers, employees, customers and lobby groups that have an interest in the way an organization operates (Wagner Mainardes, Alves & Raposo, 2011). It was highly influenced by many concepts that were raised in the planning department of the Lockheed Company. These ideas were developed from the research done by Igor Ansoff and Robert Steward in the company (MacIntosh & Maclean, 2014).

Muchlinski (2011) viewed the stakeholder theory from different perspectives. There is the Normative Stakeholder theory, which contains theories of how managers or stakeholders ought to act and view the method of reasoning of organization on some moral guideline (Koschmann, 2008). The other point of view is the unmistakable partner hypothesis that is worried with how administrators and partners act and how they see their duties and activities. The aim here is to know how supervisors manage partners and how they remain for their interests. The partnership is viewed as an accumulation of interests, at some point aggressive and different times helpful.

Instrumental stakeholder theory majors on the hierarchical consequences of considering partners in administration by analyzing the relations between the act of partner administration and the achievement of different corporate administration targets. It concentrates on how administrators ought to do in the event that they need work for their own great. In some writing their own particular intrigue is acknowledged as the interests of the association, which is to get the most out of benefit or to boost shareholder esteem. This demonstrates if supervisors treat partners in accordance with the partner idea the projects were more fruitful over the long haul (Freeman, Harrison, Wicks, Parmar, and De Colle, 2010).

Freeman defines stakeholders as those groups who are fundamental to the survival of the organization (Bailur, 2006). There is concern for mapping the stakeholders, provision of comprehensive list of the specific groups associated with each category of stakeholders, and an equivalent list of interests. How does each stakeholder affect us? What are their interests? Who are our current and potential stakeholders? How do we affect every stakeholder? How do we measure these variables and their impact and how do we maintain score with our stakeholders?

Freeman, Harrison, Wicks, Parmar and De Colle (2010) incorporates in this list of stakeholder's employees, stockholders, suppliers, and the organizations local community. This list, though similar to list given by stakeholder theorists, is not uncontroversial. The stakeholder concept itself has its critics. Those critics imply that the stakeholder approach is not capable of guiding essential enhancements in corporate government in that numerous lines of accountability inferred by acknowledging a multiplicity of stakeholders, minimizes

efficiency and that the idea of stakeholders as ethically important undermines the morally significant relations between corporations and stockholders. This theory is relevant to the study because it shows the contributions of stakeholders towards project development and implementation.

2.8 Conceptual Framework

Conceptual framework is a representation of ideas and principles that the researcher seeks to establish how they relate (Allais, Raffe & Young, 2009). It's a diagrammatical expression of study variables (dependent and independent) with clear arrows showing the direction of relationship. The independent variables in this study include: community involvement in project design, community involvement in project implementation, community involvement in project monitoring and community involvement in need analysis which are used to explain the changes in the dependent variable: sustainable utilization of community-based projects. The conceptual framework for this study is illustrated in Figure1 below:

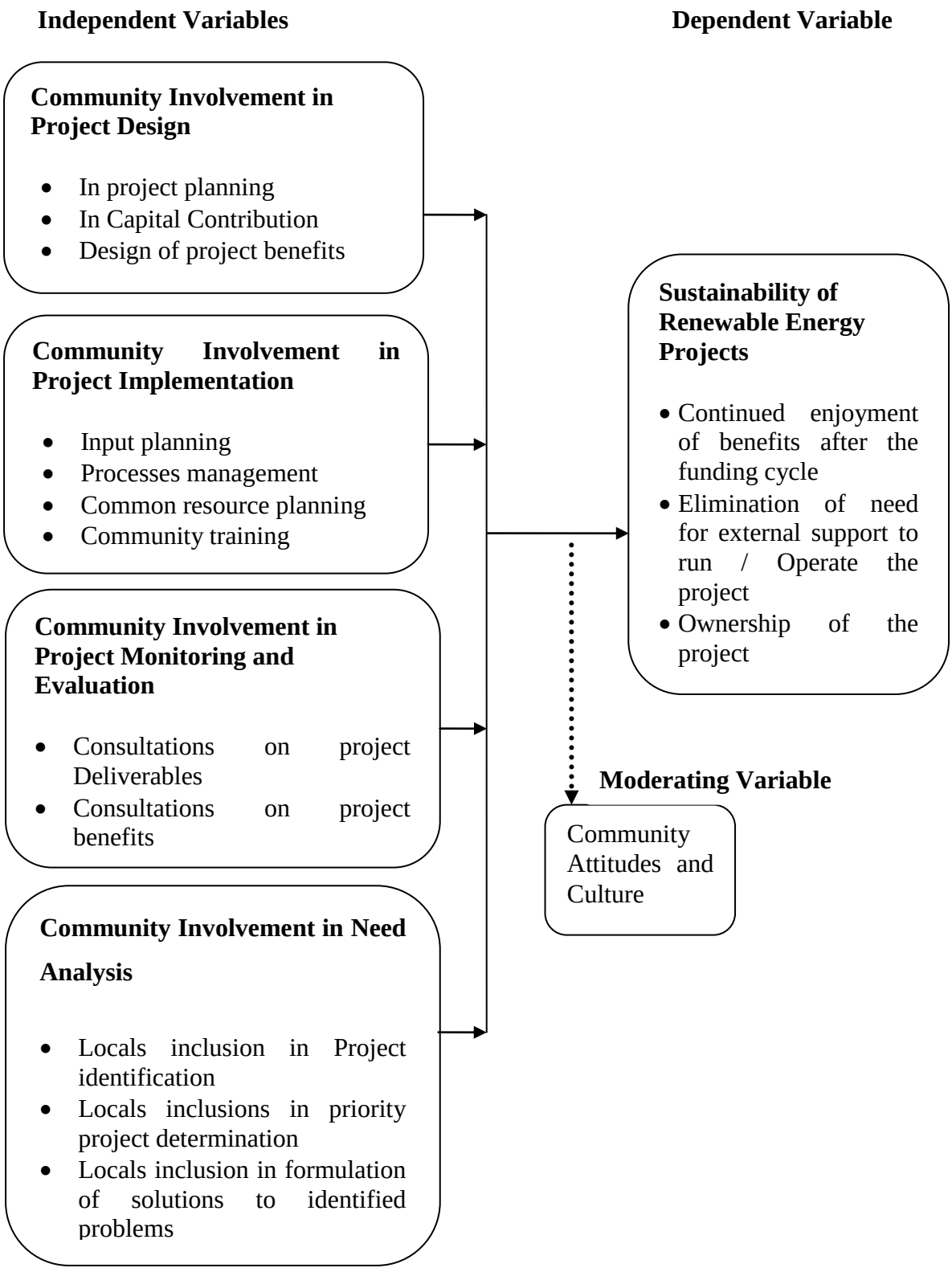

Figure 1: Conceptual Framework

2.9 Knowledge Gap

The existing body of empirical studies is not sufficient in explaining specifically the influence of community involvement on sustainability of renewable energy projects in Nakuru County. Barasa and Jelagat (2013) carried a study on community participation in project planning, management and implementation, while the current study focused on sustainability of the renewable projects, therefore the findings of this study would differ from our current study. Brinkerhoff and Goldsmith (2012) on promoting the sustainability of development institutions, this study was carried at world development and the findings may mot apply in SCODE. Brooks, Waylen and Mulder (2013) on assessing community-based conservation projects. This study was an international study hence the findings of the study may not apply in Nakuru. Williams and Schaefer (2013) did a study on SMEs and sustainability. The focus was on SMEs which limits the extension of the findings to the case of SCODE.

2.10 Summary of the Literature

The literature review has examined the concept of sustainability of renewable energy projects and how it is measured. It has highlighted the need for sustainable renewable energy projects so as to ensure that the espoused benefits continue to be realized by future generations without the assistance of external stakeholders or partners. Several studies examined have indicated the important role played by community involvement in project design and planning to ensure that their concerns are well taken care of. Community involvement in project planning ensures that resources are used optimally. The scholars have argued on the importance of involving the community in all phases of the project to ensure that they own and guard the project.

Involvement of the community in project implementation promotes chances of project success and sustainability. It enables utilization of readily available raw materials and boost the economic status of the community. Involvement of the community in project monitoring and evaluation ensures that appropriate measures are applied and a conscious is built between the project implementers and the financial partners. Involving the community in project needs analysis ensures that priority is given to projects with greater impact and importance to the community. This boosts the level of acceptance of a given project by the community.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology concerns the ways that was employed in collecting data that was suitable for generalization of findings to the entire population. It identifies ways that the researcher wants to use to collect and analyze data so as to exhaustively respond to research questions or objectives. This chapter was designed to cover research design which identifies the reasons for using the chosen design, the population of interest together with the target population. It also identifies sample size and the instruments to be used in data collection. The chapter also identified data collection procedures, analysis and operationalization of variables. It finally identifies the ethical standards to be observed by the researcher.

3.2 Research Design

Research design entails the arrangement of the prevailing data, collection and analysis in a manner oriented to bring relevance to the research objectives as stated by Astalin (2013). This study adopted descriptive survey design, both qualitative and quantitative data was collected. Descriptive design has been deemed appropriate because the respondents were required to provide information on matters of what, where, when and how community involvement has affected sustainability of renewable energy projects in Nakuru County. This design was appropriate because it does not require experiments but a brief description of a phenomenon being studied so as to build a profile. The design was appropriate in collecting, classifying, analyzing, comparing and interpreting data. Yin (2013) stated that a descriptive survey design is adequate especially where the researcher intends to draw conclusions for a larger population. This survey design develops quick preview of particular issues of interest because smaller samples were used in the study.

3.3 Target Population

A target population is the collection or set of individuals or subjects whose properties will be analysed (Creswell & Creswell, 2017). According to SCODE's Human Resource Records, the organization has 15 employees; the Sales and Marketing Strategy at SCODE indicates that the organization has 14 women groups, 65 active entrepreneurs in Nakuru, 2 CBO's and approximately 50 end users who are connected to the Solar Nano Grid (SoNG) and also use Biogas. The study will therefore target 14 Women Groups, 2 CBOs, 65 active entrepreneurs of Scode, 50 end users/customers of Scode and 15 employees of Scode. Each women group and CBO has about 30 members. Therefore, a total number of 610 representatives from women groups, Echariria and Lemolo CBOs, users/customers, entrepreneurs and employees of Scode were targeted as shown in Table 3.1.

Table 3.1 Target Population

	Population
Women Groups	420
CBOs (Echariria and Lemolo)	60
Enterpreneurs of Scode	65
End Users/Customers	50
Scode Employees	15
Total	**610**

3.4 Sampling Technique

A study sample design was a definitive plan used to gain a sample from a given population. It shows a step-by-step procedure that the researcher adopted in selecting items from the target population that made the sample for the study (O'Connor & Kleyner, 2011). The study adopted the following formula by Kothari (2004) to determine the sample size.

$$n = \frac{z^2.N.\partial_p^2}{(N-1)e^2 + z^2\partial_p^2}$$

$$n = \frac{1.96^2 * 610 * 0.5^2}{(610-1)0.05^2 + 1.96^2 * 0.5^2}$$

$$= \frac{585.844}{1.5225 + 0.9604}$$

n = 235 respondents distributed as shown in the table 3.2

Table 3.2: Sample Size

	Population	Sample Proportion (%)	Sample Size
Women Groups and CBOs	480	78.7	185
Enterpreneurs of Scode	65	10.7	25
End Users/Customers	50	8.2	19
Scode Employees	15	2.4	6
Total	**610**	**100**	**235**

3.5 Data Collection Instruments

The study made use of primary data which shall be collected using a structured questionnaire and focused group discussion guides. Questionnaires were adopted because they contained sources of primary data that is free from biasness. In total, four different questionnaires were employed each for employees of SCODE, end users/customers of SCODE, women groups and entrepreneurs. Each questionnaire was customized to each category of respondents who took part in the study. The first section of the questionnaire presented the general information of respondents. Section B gave information on community involvement in project design. Section C contained information on community involvement in project implementation. Section D offered information on community involvement in project monitoring and evaluation. Section E contained information on community involvement in need analysis while Section F gave information on sustainability of renewable energy projects.

The questionnaires were designed by the researcher whereby they contained both closed and open-ended questions. Chan, Fung and Chien (2013) deduced that questionnaires constituted various questions that are printed in a specific order so as to obtain relevant research data. Structured questionnaires guaranteed the reliability of responses thus ensuring the collection

of adequate and quality research data. The questionnaires were administered via the drop and pick method for respondents in an office while for the beneficiaries, the researcher met them at their business premises and at their home and then administer the questionnaire using a research assistant and collect the questionnaire immediately. The instrument collected both background information as well as the factors that influenced sustainable utilization of community projects.

3.5.1 Pilot Testing of the Instruments

Pilot tests were conducted with the aim of identifying possible weaknesses in the framing of question and the overall design of the instruments. It sought to identify the flaws and limitations in the instrument that may make it difficult for the study to realize set objectives. Through pilot studies, the researcher was able to make changes on the instrument so that they could collect appropriate data. Yin (2013) noted that a sample of at least ten respondents is adequate to establish the appropriateness of the questions in the instrument. This was also enhanced through reliability tests. The study pretested the instrument on 10% of the sample size from SACDEP to ascertain the clarity in questions and how easy it was for the respondents to understand it.

3.5.2 Validity of the Instruments

The researcher gave the questionnaire to the project coordinator who was an expert following extensive research supervision in the particular field of interest so as to obtain opinion to be used to ascertain the validity of the designed research instruments.

3.5.3 Reliability of the Instruments

The researcher adopted the internal consistency measure referred to as the Cronbach's alpha (α). This is a co-efficient that measures internal research instruments reliability. A co-efficient value above 0.7 implies that the research instruments are reliable hence the researcher can proceed to using the instruments in the final data collection (Neuman, 2013). The researcher used split half method, where the odd and even questions was compared using correlation analysis, the higher the correlation the more reliable the instrument.

3.6 Data Collection Procedures

Prior to field work, the researcher collected a research permit from the National Commission for Science, Technology and Innovation (NACOSTI) to carry out research. This study collected primary data from the field using a structured questionnaire that contained both open and close ended questions. Questionnaire was used since it was relatively quick and easy to develop code and interpret. The questionnaire covered demographic information and each of the four study variables. The questionnaire also used the Five Point Likert scale to explain the extent of agreement in each of the study variables.

The study applied self-administration method in questionnaire administration to increase the response rate from the respondents. The questionnaire was issued to respondents at their places of work and at their homes for the end users. The respondents were allowed one week to fill the questionnaire before the researcher collected them for analysis. At the point of issuing the questionnaire, contact information of the researcher was given to respond to any queries that arose while filling the questionnaire.

3.7 Data Analysis Techniques

Collected research instruments were coded before entry into statistical software for analysis. Data cleansing was also carried out before coding would actually commence. Descriptive statistics was computed whereby frequencies, percentages, means and standard deviations were clearly shown in the form of both tables and figures. Inferential statistics were also computed with the aid of regression analysis. The tabulated data was analyzed using descriptive and regression statistics with the Statistical Package for Social Sciences (SPSS 23.0). A regression model was also used to determine the nature of the relationship between community involvement and sustainability of renewable energy projects.

The regression mode to be adopted was:

$$\mathbf{Y = (\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon)}$$

Where:

Y = Sustainability of Renewable Energy Projects

X_1 = Involvement of the community in project design

X_2 = Involvement of the community in project implementation

X_3 = Involvement of the community in project monitoring and evaluation

X_4= Involvement of the community in project need assessment

β = constant,

β_1, β_2, β_3 and β_4= Regression Coefficients

ε = Error Term

The primary Regression form took the form of:

$$\mathbf{Y = (\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon)}$$

3.8 Operationalization of Variables

Table 3.3: Operationalization of Variables

Objective	Variable Type	Indicators	Type of data analysis	Scale of Measurement
To establish the influence of community involvement in project design on sustainability of renewable energy projects in Nakuru County	Independent Community involvement in project design	• In project planning • In Capital Contribution • Design of project benefits	• Descriptive statistics • Multiple Linear Regression	• Ordinal • Nominal
To determine the examine the influence of community involvement in project implementation on sustainability of renewable energy projects in Nakuru County	Independent Community involvement in project implementation	• Input planning • Processes management • Common resource planning • Community training	• Descriptive statistics • Multiple Linear Regression	• Ordinal • Nominal
To establish the determine the influence of community involvement in project monitoring and evaluation on sustainability of renewable energy projects in Nakuru County	Independent community involvement in project monitoring and evaluation	• Consultations on project Deliverables • Consultations on project benefits • Frequency of conducting the monitoring • Involvement in report development	• Descriptive statistics • Multiple Linear Regression	• Ordinal • Nominal

Assess the influence of community involvement in need analysis on sustainability of renewable energy projects in Nakuru County	Independent Community involvement in need analysis	• Locals inclusion in Project identification • Locals inclusions in priority project determination • Locals inclusion in formulation of solutions to identified problems	• Descriptive statistics • Multiple Linear Regression	• Ordinal • Nominal
Sustainability of renewable energy projects in Nakuru County	Dependent	• Continued enjoyment of benefits after the funding cycle • Elimination of need for external support to run / Operate the project • Ownership of the project	• Descriptive statistics • Multiple Linear Regression	• Ordinal • Nominal

3.9 Ethical Consideration

The researcher adhered to the high ethical standards of research work. The researcher sought permission from the management team by writing a formal letter explaining the purpose and objectives of the study. The respondents' consent was sought before the start of the research work, confirming to them that the information is for academic purpose only. The researcher assured respondents of confidentiality of the information they provide. And lastly the research findings were presented in an honest and unbiased manner.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents the findings of both quantitative and qualitative analysis on influence of community involvement on sustainability of renewable energy projects. The findings are presented in form of prose on content analysis and figures and tables on quantitative data.

4.1.1 Questionnaire Response Rate

The researcher distributed 235 questionnaires to women groups, CBOs, entrepreneurs of SCODE, Customers and SCODE employees, 181 questionnaires were dully filled and returned to the researcher. This gave a response rate of 75% which is deemed sufficient for the study. The findings are illustrated by Babbie (2010) who proposed that any response rate of above 50% is adequate for the purposes of generalization of findings to the entire population. Therefore, a response rate of 70% is sufficient for deducing findings as shown in Table 4.1.

Table 4.1: Response Rate

Designation of respondents	Issued out questionnaires	Filled and Returned questionnaires	Response (%)
Women Groups and CBOs	185	144	78
Enterpreneurs of Scode	25	18	72
End Users/Customers	19	14	74
Scode Employees	6	5	83
Total	**235**	**181**	**77**

4.1.2 Reliability Test

The researcher conducted a pilot test in order to determine the reliability of the questionnaires before commencing main data collection, a Cronbach alpha was computed to measure the consistency of the research instruments as shown in Table 4.2.

Table 4.2: Reliability Test

Variable	Number of Items	Cronbach Alpha
Project design	23	0.79
Project implementation	23	0.80
Project monitoring and evaluation	23	0.77
Need analysis	23	0.74

The findings established that community involvement in project implementation had the highest influence on sustainability of the renewable energy projects as illustrated by a coefficient of Cronbach alpha of 0.80, followed by community involvement in project design with a Cronbach alpha of 0.80, community involvement in project monitoring and evaluation had a Cronbach alpha of 0.77 and community involvement in need analysis had a Cronbach alpha of 0.74. From the results, all of the variables had a Cronbach alpha coefficient of above 0.7 which indicates instrument reliability. The findings are in support of Neuman (2013) who states that a co-efficient value above 0.7 implies that the research instruments are reliable hence the researcher can proceed to using the instruments.

4.2 Demographic Information

Data on demographic information of the persons who provided data to enable completion of this study is provided. Respondents were established into the following groups; employees at SCODE and customers/ end users. The findings are as shown in subsequent sections.

4.2.1 Demographic Information of Employees at SCODE

This section presents the findings on; gender, level of education, period worked in the current organization or business and level of employment in current organization as illustrated in Table 4.3.

Table 4.3: Demographic Information of Employees at SCODE

Category	Classification	Frequency	Percentage
Gender	Male	3	60
	Female	2	40
	Total	**5**	**100**
Education Level	Diploma	1	20
	Undergraduate degree	3	60
	Post Graduate degree	1	20
	Total	**5**	**100**
Period Worked	Less than 3 years	0	0
	3-6 Years	2	40
	6-9 Years	2	40
	Over 9 Years	1	20
	Total	**5**	**100**

From Table 4.3, majority of the respondents indicated that 60% were male followed by 40% who were female. The findings show that majority of the employees working at SCODE were male. This illustrates that SCODE had employed many males as compared to females.

The study further pointed out that 60% of the staff at SCODE highest level of education was undergraduate degree, followed by 20% of diploma and post graduate degree. The findings show that majority of the respondents had undergraduate degree an indication that they were competent and would answer the questions asked with due diligence.

The findings point out that 40% of the staffs had worked for 3-6 years and 6-9 years followed by 20% who had worked for more than 9 years. It can be deduced that majority of those who provided data had worked for more than 3 years which means that they were well conversant with the influence of community involvement on sustainability of projects an indication that reliable data was sought.

4.2.2 Demographic Information of Customers/ End Users of SCODE Project

Respondents were asked to indicate their demographic information regarding the following; gender, level of education and number of years they have been using SCODE projects to establish their appropriateness as illustrated in Table 4.4.

Table 4.4: Demographic Information of Customers/ End Users of SCODE Project

Category	Classification	Frequency	Percentage
Gender	Male	8	60
	Female	6	40
	Total	**14**	**100**
Years of SCODE projects use by Customers	Less than 3 years	2	14
	3-6 Years	4	29
	6-9 Years	7	50
	Over 9 Years	1	7
	Total	**14**	**100**

Table 4.4 results indicate that 60% of the respondents who make up a simple majority were male followed by 40%, female. The findings show that majority of the customers who had benefitted from SCODE projects were male. The findings further show that 50% of the respondents had benefitted from SCODE projects for a period of 6-9 years followed by 29%, for a period of 3-6 years, 14% indicated less than 3 years and lastly 7% indicated over 9 years. The findings therefore show that majority of the respondents had benefitted from SCODE projects for more than 3 years, an indication they were well aware of its sustainability hence gave reliable data.

4.3 Community Involvement in Project Design

Data results on the level of respondents' agreement on community involvement in project design on sustainability of renewable energy projects on a scale of 1-5, 5 being the highest level. The findings are as shown in subsequent sections.

4.3.1 Community Involvement in Project Design as Reported by Employees at SCODE

The following responses in Table 4.5 were sought from employees at SCODE as one of the respondents of the study.

Table 4.5: Project Design as Reported by Employees at SCODE

Statement	Mean	Std. Dev
Our project team ensures that the community plays a good role in the entire process of the project.	3.99	0.75
During project design, our staff focus on getting public input	3.78	1.05
Involving members of the community on project design result into timely delivery of project inputs in my organization	3.81	0.96
In my organization, the goals of the project are tied to community needs.	4.05	0.83
In my organization, the targets of the project are tied to community expectations	4.01	0.74

From the findings, majority of the respondents agreed that their project team ensured that the community played a good role in the entire process of the project as illustrated by a mean of 3.99 with standard deviation of 0.75. Respondents agreed that their staff focused on getting public input during project design as illustrated by a mean of 3.78 with standard deviation of 1.05. Majority of the respondents agreed that they involved members of the community on project design result into timely delivery of project inputs in their organization as illustrated by a mean of 3.81 with standard deviation of 0.96. Loock, Staake and Thiesse (2013) states that goals are very essential because they give direction and promote enthusiasm. Involving the community in project design lead to success of the project (Epstein, 2013).

The study established that majority of the respondents agreed that their organization focused on the goals of the project are tied to community needs as illustrated by a mean of 4.05 with standard deviation of 0.83. Majority agreed that their organization focused on the targets of the project tied to community expectations as illustrated by a mean of 4.01 with standard deviation of 4.01 with standard deviation of 0.735. Dahlgaard, et al. (2013) states that having developed plans, schedules and clear goals makes one achieve what he or she wants to do.

4.3.2 Community Involvement in Project Design as Reported by Customers at SCODE

The following responses in Table 4.6 were sought from customers at SCODE as one of the respondents of the study.

Table 4.6: Project Design as Reported by Customers at SCODE

Statement	Mean	Std. Dev
Customers are actively involved in project design at SCODE	4.00	0.86
Involving members of the community in project design result into timely delivery of project inputs in my organization	3.95	0.83
The goals of the projects are tied to customer needs.	4.05	0.83
The targets of the project are tied to customers' expectations	3.80	0.83

The results indicate that a simple majority of the respondents agreed that their customers were actively involved in project design at SCODE as illustrated by a mean of 4.00 with standard deviation 0.86. Majority of the respondents agreed that involving members of the community in project design resulted into timely delivery of project inputs in their organization as illustrated by a mean of 3.95 with standard deviation of 0.83. Respondents agreed that the goals of the projects were tied to customer needs as illustrated by a mean of 4.05 with standard deviation of 0.83. Majority of the respondents agreed that the targets of the project were tied to customers' expectations as illustrated by a mean of 3.80 with standard deviation of 0.83. Liu, Eng and Ko (2013) states that project needs to contribute positively, respect the traditions of the community and governance of the institutions that are in place at the time. This would promote a sense of equity and eventually lead to ecological success in the community.

4.4 Community Involvement in Project Implementation

The study sought to identify the level of agreement of customers and employees on community involvement in project implementation on sustainability of renewable energy projects on a scale of 1-5. The findings are as shown in subsequent sections.

4.4.1 Community Involvement in Project Implementation as Reported by Employees at SCODE

The findings on level of employee's agreement on influence of community involvement in project implementation at SCODE are as shown in Table 4.7.

Table 4.7: Project Implementation as Reported by Employees at SCODE

Statement	Mean	Std. Dev
Project implementation in my organization entails putting into action the plans	3.59	0.97
Project implementation in my organization ensure delivery of the espoused benefits to project beneficiaries	3.28	0.65
Project implementation operationalizes ideas formulated in my organization	3.45	0.99
My organization involves process management in project development	4.08	0.66
Process management in project development enables the community to analyze their strengths before developing the project.	3.35	1.46

The results indicate that a simple majority of the respondents agreed that project implementation in their organization entailed putting into action the plans as illustrated by a mean of 3.59 with standard deviation of 0.97. The organization ensured delivery of the espoused benefits to project beneficiaries by a mean of 3.28 with standard deviation of 0.65. Baskerville (2013) states that project implementation is essential because it helps operationalize the ideas formulated. Projects that are driven by the community are easily interpreted by reducing information problems and outlining the development priorities directly from the target community.

Majority of the respondents moderately agreed that project implementation operationalized ideas formulated in their organization as illustrated by a mean of 3.45 with standard deviation of 0.99. Majority of the respondents agreed that their organization involved process management in project development as illustrated by a mean of 4.08 with standard deviation of 0.66. Respondents moderately agreed that process management in project development

enabled the community to analyze their strengths before developing the project as illustrated by a mean of 3.35 with standard deviation of 1.46. Hou and Zhang (2013), community driven projects contribute largely towards the development and sustainability of the community in general.

4.4.2 Community Involvement in Project Implementation as Reported by Customers at SCODE

The findings on level of customer's agreement on influence of community involvement in project implementation at SCODE are as shown in Table 4.8.

Table 4.8: Project Implementation as Reported by Customers at SCODE

Statement	Mean	Std. Dev
Project implementation at SCODE entails putting into action the plans	3.57	0.99
Project implementation at SCODE ensure delivery of the espoused benefits to project beneficiaries	3.99	0.75
Project implementation operationalizes ideas formulated by SCODE	3.54	1.45
SCODE involves process management in project development	3.70	1.06
Process management in project development enables the community to analyze their strengths before developing the project.	3.21	0.60

The findings pointed out that majority of the customers agreed that project implementation in their organization entailed putting into action the plans by a mean of 3.57 with standard deviation of 0.99. The customers agreed that project implementation in their organization ensured delivery of the espoused benefits to project beneficiaries by a mean of 3.99 with standard deviation of 0.75. Community developments rely on the local people who use their capital to organize and participate in the processes of developing the project (Berkes and Ross, 2013).

Customers agreed that project implementation operationalized ideas formulated in their organization as illustrated by a mean of 354 with standard deviation of 1.45. Customers agreed that their organization involved process management in project development as illustrated by a mean of 3.70 with standard deviation of 1.06. Customers moderately agreed

that process management in project development enabled the community to analyze their strengths before developing the project as illustrated by a mean of 3.21 with standard deviation of 0.60. According to Hou and Zhang (2013), community driven projects contribute largely towards the development and sustainability of the community in general.

4.5 Community Involvement in Project Monitoring and Evaluation

Results relating to the extent of agreement with each of the statements on community involvement in project monitoring and evaluation are indicated below with a mean calculated on a scale of 1-5. The findings as reported by community members and employees at SCODE are as shown in subsequent sections below.

4.5.1 Community Involvement in Project Monitoring and Evaluation as Reported by Employees at SCODE

The findings of employee's agreement with each statement on community involvement in project monitoring and evaluation as shown in Table 4.9.

Table 4.9: Project Monitoring and Evaluation as Reported by Employees at SCODE

Statement	Mean	Std. Dev
Our organization guide community members on how to create action plans	3.46	0.81
Before developing a project, the community is usually consulted first	3.74	0.94
Involving locals from the community in project execution facilitates the process of M & E in my organization.	4.07	0.49
Monitoring and evaluation are carried out on a regular basis in my organization	4.13	0.48
Allowing local participation in monitoring and evaluation leads to attainment of project deliverables	3.88	0.89

Based on the findings, the study established that majority of the employees moderately agreed that their organization guided community members on how to create action plans by a mean of 3.46 with standard deviation of 0.81. Respondent agreed that before developing a project,

the community was usually consulted first as illustrated by a mean of 3.74 with standard deviation of 0.94. Staffs agreed that involving locals from the community in project execution facilitated the process of M & E in their organization as illustrated by a mean of 4.07 with standard deviation of 0.49. This is illustrated by Bedell, et al. (2013) who states that community involvement is a crucial instrument when developing a project.

The respondents agreed that monitoring and evaluation were carried out on a regular basis in their organization as illustrated by a mean of 4.13 with standard deviation of 0.48. Majority of the staffs agreed that allowing local participation in monitoring and evaluation led to attainment of project deliverables as illustrated by a mean of 3.88 with standard deviation of 0.89. Reider-Gordon, Funk, Ewelukwa and Feldman (2013) ascertain that when local people in the community are involved in the project execution, monitoring and evaluation of the projects becomes easier.

4.5.2 Community Involvement in Project Monitoring and Evaluation as Reported by Customers at SCODE

The findings of customer's agreement with each statement on community involvement in in project monitoring and evaluation as shown in Table 4.10.

Table 4.10: Project Monitoring and Evaluation as Reported by Customers at SCODE

Statement	Mean	Std. Dev
Customers are guided on how to create action plans	3.33	0.65
Before developing a project, the customers are usually consulted first	3.97	0.77
Monitoring and evaluation are carried out on a regular basis in my organization	3.80	0.60
Allowing customer participation in monitoring and evaluation leads to attainment of project deliverables	3.52	1.49

The findings show that customers were guided on how to create action plans as illustrated by a mean of 3.33 with standard deviation of 0.65. Before developing a project, the customers were usually consulted first by a mean of 3.80 with standard deviation of 0.60. Dooris and Heritage (2013) confirms that it is always essential to empower the local people and equip

them with knowledge so that community monitoring and evaluation can achieve its purpose accordingly.

Monitoring and evaluation were carried out on a regular basis in respondents' organization as illustrated by a mean of 3.80 with standard deviation of 0.60. The study further pointed out that allowing customer participation in monitoring and evaluation led to attainment of project deliverables as illustrated by a mean of 3.52 with standard deviation of 1.49. Ge, Song and Gao (2013) the Monitoring and Evaluation process should be explained to the local community as to why it is very crucial when developing and implementing the project

4.6 Community Involvement in Need Analysis

Respondents were asked to indicate the extent of their agreement with each of the statements on community involvement in needs analysis on a scale of 1-5. The findings as reported by customers and employees at SCODE is as shown in subsequent sections.

4.6.1 Community Involvement in Need Analysis as Reported by Employees at SCODE

Results on the influence of community involvement in need analysis on sustainability of projects is shown in Table 4.11.

Table 4.11: Need Analysis as Reported by Employees at SCODE

Statement	Mean	Std. Dev
Involving community in need analysis helps my organization to meet local priorities in the most effective way	3.57	0.81
Community needs analysis helps my organization to gather information that is useful in meeting gaps of the community	3.86	1.19
During need analysis, my organization make changes to our project	3.45	0.44
The community in general is involved in need analysis to contribute to possible solutions to the problems identified	3.65	1.32

The study established that majority of the respondents agreed that involving community in need analysis helped their organization to meet local priorities in the most effective way by a

mean of 3.57 with standard deviation of 0.81. Community needs analysis helped respondent's organization to gather information that was useful in meeting gaps of the community as illustrated by a mean of 3.86 with standard deviation of 1.19. Majority of the respondents moderately agreed that during need analysis, their organization made changes to their project as illustrated by a mean of 3.45 with standard deviation of 0.44. The community in general was involved in need analysis to contribute to possible solutions to the problems identified as illustrated by a mean of 3.65 with standard deviation of 1.32. Johnston and Bate (2013) community needs analysis helps in gathering information that is useful in meeting gaps of the community, demographic changes of the community, parental needs and preferences that are related to services of the community.

4.6.2 Community Involvement in Need Analysis as Reported by Customers at SCODE

The following responses in Table 4.12 were sought from customers at SCODE as one of the respondents of the study.

Table 4.12: Need Analysis as Reported by Customers at SCODE

Statement	Mean	Std. Dev
Involving customer in need analysis helps the organization to meet local priorities in the most effective way	3.78	1.15
Customer needs analysis helps the organization to gather information that is useful in meeting gaps of the community	4.22	0.48
The customers in general are involved in need analysis to contribute to possible solutions to the problems identified	3.65	1.30

The findings established that majority of the respondents agreed that involving customer in need analysis helped the organization to meet local priorities in the most effective way as illustrated by a mean of 3.78 with standard deviation of 1.15. Customer needs analysis helped the organization to gather information that was useful in meeting gaps of the community as illustrated by a mean of 4.22 with standard deviation of 0.48. Respondents agreed that customers in general were involved in need analysis to contribute to possible solutions to the problems identified as illustrated by a mean of 3.65 with standard deviation of 1.30. Spence

and Liu (2013) states that it is important to involve the community at large so that a wide range of ideas and wisdom can be utilized fully towards formulating solutions to the identified problems when performing needs analysis.

4.7 Sustainability of Renewable Energy Projects

Respondents were asked to indicate their extent of agreement with each of the following statements on sustainability of renewable energy projects on a scale of 1-5. The findings as reported by employees and customers at SCODE is as shown in subsequent sections.

4.7.1 Sustainability of Renewable Energy Projects as Reported by Employees at SCODE

The following responses in Table 4.13 were sought from employees at SCODE as one of the respondents of the study.

Table 4.13: Sustainability of Projects as Reported by Employees at SCODE

Statement	Mean	Std. Dev
Our targeted beneficiaries are in a position to continue enjoying the benefits of the project without any assistance of external partners	4.21	0.57
Our beneficiaries feel entitled to the project	3.82	0.57

The study established that their targeted beneficiaries were in a position to continue enjoying the benefits of the project without any assistance of external partners as illustrated by a mean of 4.21 with standard deviation of 0.57. The beneficiaries felt entitled to the project as illustrated by a mean of 3.82 with standard deviation of 0.57.

4.7.2 Sustainability of Renewable Energy Projects as Reported by Customers at SCODE

The following responses in Table 4.14 were sought from customers at SCODE as one of the respondents of the study.

Table 4.14: Sustainability of Projects as Reported by Customers at SCODE

Statement	Mean	Std. Dev
Customers are in position to continue enjoying the benefits of the	4.11	0.66

project without any assistance of external partners		
We feel entitled to the project	3.75	0.50

The respondents agreed that they were in a position to continue enjoying the benefits of the project without any assistance of external partners as shown by a mean of 4.11 with standard deviation of 0.66. Majority of the customers felt entitled to the project as illustrated by a mean of 3.75 with standard deviation of 0.50. Renewable energy projects have been promoted for rural electrification as an answer to the growing energy needs of communities while simultaneously satisfying environmental and resource scarcity problems (Terrapon, Dienst, König & Ortiz, 2014).

4.8 Interview Guide for Women Group and CBOs

4.8.1 Introduction

The study targeted 2 CBOs and 14 women groups in data collection comprising an interview guide. The study targeted 185 respondents but due to their busy schedules 144 respondents managed to schedule and attend which formed the basis of analysis.

4.8.2 Demographic Information

The interviewer sought to establish the appropriateness of the interviewees, to achieve this the interviewee asked the respondents to state for how long they had benefited from renewable energy projects. From the responses, the study established that most of the interviewees had benefited from SCODE's projects for more than 5 years. The responses show that the interviewees were well conversant with influence of community involvement on sustainability of projects. This shows that they were able to understand the queries asked and answer with due diligence hence gave reliable information.

4.8.3 Community Involvement in Project Design

Interviewees were asked to indicate ways in which SCODE involved them in project design. From the responses, the study established that SCODE involved women groups to the project design by being facilitators and not managers, this means that the organization aims to help

build alliances that aims to understand a community rather than implementing rules. SCODE takes a bottom up approach to project design which ensures that the community buy-in is essential. SCODE takes a holistic approach and recognizes diversity of the community members.

The interviewer further requested the respondents to indicate what roles they played during the design of projects at Nakuru. From the responses, it was clear that women groups and CBOs were tasked with the main role of educating the community of the advantages of community involvement and sustaining of projects. The interviewees further indicated that they were entitled to timely delivery of projects inputs in their organization.

Respondents were further asked to indicate challenges identified when involved in project design at Nakuru. From the responses, the study established that some of the interviewees were not fully aware of the risks taken, some of the respondents disagreed on the land where the solar hub would be and some of the members did not conceptualize all of the concept.

4.8.4 Community Involvement in Project Implementation

The interviewee asked the respondents to indicate how SCODE involved them in project implementation. From the responses, majority of the respondents indicated that they were the first beneficiaries of SCODE pilot testing solar or biogas products. The findings also established that respondents were trained, mentored and were involved in project implementation. Interviewees also said that they were involved in putting into action the plans and operationalized ideas formulated by SCODE for projects in Nakuru, by having individual groups from their own Village Energy Committees (VEC) tasked with running of affairs of the Solar Nano Grid projects, including collection and accountability of Solar Incubator Businesses, and employment of one of its members as watchmen, solar technicians and treasurer for their businesses.

The researcher further asked the interviewees to indicate the challenges faced during project implementation. From the responses, most of the respondents indicated that some projects had poorly defined goals, unrealistic deadlines, insufficient team skills and improper communication and accountability within the team.

The interviewers were asked to indicate how the identified challenges in project implementation were solved. From the responses, the study established that project management team ought to hold a kickoff meeting to define clear goals and project managers can take care of the project deadlines and other related issues with impeccable planning, alternative analysis and proper communication of the real-time progress to project participants and other key decision makers. The study further established that management ought to train respondents to enhance their knowledge and end the skill gaps and determine proper communication flows for project members and develop a way to inform what information needs to be informed to project members.

4.8.5 Community Involvement in Project Monitoring and Evaluation

Respondents were asked to indicate how their counties involved them in monitoring and evaluation of projects. From the responses, the study established that women groups and CBOs were consulted during actions plans executions. Respondents indicated that they were involved in project execution and also facilitated the process of M & E in their communities. The study also established that they were allowed to participate in monitoring and evaluation which lead to attainment of project deliverables.

The researcher further requested the interviewee to suggest measures that SCODE should take to increase local involvement in monitoring and evaluation. The respondents said that linking M&E to strategic plans and work plans, focusing on efficiency and cost effectiveness, employing a participatory approach to monitoring progress, utilizing both international and local expertise, disseminating results widely, using data from multiple sources and facilitating the use of data for program improvement.

4.8.6 Community Involvement in Need Analysis

The researcher asked the interviewee to indicate how SCODE involved locals during need analysis. The findings indicated that SCODE used workshops where an open brainstorming about their problems were consider to be a priority. SCODE consulted the locals and identified a hierarchy of causes and effects. SCODE collaborated with the locals at sorting all the problems identified.

Respondents were asked to indicate some of the activities undertaken during need analysis. From the responses, respondents indicated that specific goals and objectives are set, the target group for analysis and their desired competencies are defined, online assessment is carried out, trainable competencies and target group are determined. Respondents further said that a gap analysis is determined, evaluation of the gap analysis, comparison of costs verses the expected benefits of conducting the assessment and evaluation of the proposed need analysis is carried out.

Interviewees were further asked to indicate some of the challenges they go through in their involvement in need analysis at SCODE. The findings showed that the women groups/CBOs reported that their biggest obstacle was developing recommendations that could be reasonably implemented, given resources such as budget and time. Meanwhile, nearly half indicated difficulty isolating organizational factors that contribute to current sustainability of projects. The interviewees further indicated that another challenge was applying a systematic process that aligned learning solutions and business outcomes.

4.8.7 Sustainability of Renewable Energy Projects

Respondents were asked to comment on sustainability of SCODE's projects, the study established that the projects were beneficial to women groups and CBOs as they created continuing businesses. Interviewees were further asked to indicate how Nakuru ensured that their projects were sustainably utilized by the local community. From the response, the majority of the respondents indicated that SCODE often communicated to the locals regarding new improved energy efficient cook stoves and solar products and facilitated restocking of the products in their group businesses, and by use of favorable credit terms to the members of the group/CBO.

4.9 Interview Guide for Entrepreneurs of SCODE

4.9.1 Introduction

The study targeted entrepreneurs in data collection comprising an interview guide. The study targeted 25 respondents but due to their busy schedules 18 respondents attended which formed the basis of analysis.

4.9.2 Demographic Information

The interviewer sought to establish the appropriateness of the interviewees, to achieve this the interviewee asked the respondents to state for how long they had benefited from renewable energy projects. From the responses, the study established that most of the interviewee had benefited from SCODE for more than 7 years.

4.9.3 Community Involvement in Project Design

The interviewees were asked to indicate how SCODE involved them in project design. Most of the respondents indicated that they were asked by SCODE to indicate the products that were minimal in the market and the gap they could fill.

The respondents were further asked to indicate the role they played during the design of renewable energy projects at SCODE. From the response, most of the interviewees said that they gave their opinion on proposed model for biogas and solar that would be suitable in their homes and most of their customers' homes.

Respondents were further asked to indicate some of the challenges faced during project design. From the responses, most of the respondents indicated that they were not able to understand the technical aspects of solar and biogas. Respondents also indicated that they were not sure of what their risks were as entrepreneurs.

4.9.4 Community Involvement in Project Implementation

The interviewees were asked to indicate ways that SCODE involved them in project implementation. From the response, most of the respondents indicated that SCODE identified and engaged them as the dedicated sole retailers of SCODE products in their localities at favorable credit terms. Interviewees also said that they were involved in putting into action the plans and operationalized ideas formulated by SCODE through market activation promotional days and documenting where the products purchased were located in order to facilitate effective project reporting for location of solar, biogas plants and improved cook-stoves on behalf of SCODE.

Respondents were further asked to indicate their involvement in project implementation at Nakuru and to identify some of the challenges they faced. From the response, the study established that most of the respondents indicated that the products were too expensive for the regular customers and their business time conflicted with that of the SCODE's training/mentorship hours. The need for GPS reporting on each product sold to their customers, though facilitated, also took a huge part of their business time.

Respondents were further asked to indicate the best way of solving the project implementation challenges. Most of the respondents indicated that SCODE ought to slot their training hours to non-business days to avoid conflicting with business hours and selling cheaper or affordable renewable energy solutions to them.

4.9.5 Community Involvement in Project Monitoring and Evaluation

The interviewee asked the respondents to indicate how SCODE involved them in monitoring and evaluation of the projects. Most of the respondents indicated that they did more follow ups visits of their sales and improved on their record keeping. Entrepreneurs were allowed to participate in monitoring and evaluation which lead to attainment of project deliverables.

The researcher further asked the respondents to indicate some of the activities they undertook during project implementation at Nakuru. The findings indicated that most of the respondents created awareness to the market through market tours in the community, participated in

training and sold SCODE products. Reider-Gordon, Funk, Ewelukwa and Feldman (2013) ascertain that when local people in the community are involved in the project execution, monitoring and evaluation of the projects becomes easier.

The interviewers were asked to suggest measures that SCODE should take to increase entrepreneurial involvement in monitoring and evaluation. From the response, the study established that SCODE ought to communicate the final results after assessment of their businesses and educate the entrepreneurs on the importance of monitoring and evaluation of their businesses. This is illustrated by Bedell, et al. (2013) who states that community involvement is a crucial instrument when developing a project.

4.9.6 Community Involvement in Need Analysis

Respondents were further asked to indicate ways that SCODE involved entrepreneurs during need analysis. From the responses, most of the respondents said that SCODE ought to create awareness on the upcoming projects and engaging the respondents of its benefits. SCODE ought to ask the entrepreneurs on opinion of the target customers in order to bridge the gap in the market.

Respondents were further asked to indicate some of the activities undertaken during need analysis. The findings established that most of the entrepreneurs had flyers distributed and filled questionnaires regarding their opinions on different products. Carinci, Benedetti, Klazinga and Uccioli (2016) states that outlining the new ideas helps in collecting data and developing creative ways of handling the problems that may arise during development of the project.

Interviewees were further asked to indicate some of the challenges they encountered. The findings established that time allocation for meetings was a major challenge and conflict of interest between the entrepreneur's timelines and other competitor's products. The findings further showed that entrepreneurs were also challenged with developing recommendations that could be reasonably implemented, given resources such as budget and time.

4.9.7 Sustainability of Renewable Energy Projects

Respondents were asked to comment on sustainability of SCODE's projects, the study established that the projects were beneficial to entrepreneurs as they created and improved their businesses. Interviewees were further asked to indicate how SCODE ensured that their projects were sustainably utilized by the local community. From the response, the majority of the respondents indicated that SCODE often communicated to the locals regarding new improved energy efficient cook stoves and solar products and facilitated restocking of the products in their businesses, and by use of favorable credit terms to the dedicated entrepreneurs.

4.10 Regression Analysis

The researcher regressed (community involvement in project design, community involvement in project implementation, community involvement in project monitoring and evaluation and community involvement in need analysis) against sustainability of renewable energy projects. The results are presented in subsequent sections.

4.10.1 Model Summary

The summary of the variation in sustainability of renewable energy projects in Nakuru County is represented using R2 as illustrated in the Table 4.15

Table 4.15: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.795[a]	.632	.602	1.17457

a. Predictors: (Constant), Project Design, Project Implementation, Project Monitoring and Evaluation, Need Analysis

From the Model Summary Table 4.15 above, the coefficient of adjusted determination R square is 0.632, an indication that 63.2% variation in sustainability of renewable energy projects in Nakuru County is explained by the four factors (Project Design, Project Implementation, Project Monitoring and Evaluation, Need Analysis) and therefore other

factors beyond the scope of the current study explain the remaining 36.8%. These other factors can be explored by future scholars and academicians.

4.10.2 Analysis of Variance

An Analysis of Variance of the processed data was conducted at 5% level of significance. The findings are indicated in Table 4.16.

Table 4.16: Analysis of Variance

	Sum of Squares	df	Mean Square	F	Sig.
Regression	355.235	4	88.804	73.452	.000[b]
Residual	212.845	176	1.209		
Total	**568.080**	**180**			

a. Dependent Variable: Sustainability of Renewable Energy Projects

b. Predictors: (Constant), Project Design, Project Implementation, Project Monitoring and Evaluation, Need Analysis

The study found out that t 5% significance level, the value of F calculated $F_{Calculated} = 73.452$ while $F_{Critical\ (4,\ 180)} = 2.422$. As the value of F calculated is greater than F critical (267.471>2.422), this shows that the overall regression model was significant in predicting factors influencing community involvement on sustainability of renewable energy projects in Nakuru County.

4.10.3 Regression Coefficients

The coefficients were as shown in Table 4.17.

Table 4.17: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	**Std. Error**	**Beta**		
(Constant)	4.540	1.416		3.206	0.001
Project Design	0.284	0.039	0.446	7.267	0.000
Project Implementation	0.377	0.060	0.429	6.325	0.000
Project Monitoring and Evaluation	0.200	0.043	0.292	4.646	0.000
Need Analysis	0.108	0.036	0.184	3.021	0.003

a. Dependent Variable: Sustainability of Renewable Energy Projects

From the findings, the resultant model becomes;

$$\mathbf{Y = 4.54 + 0.284X_1 + 0.377X_2 + 0.200X_3 + 0.108X_4}$$

Where: Y = Sustainability of Renewable Energy Projects

X_1 = Project Design

X_2 = Project Implementation

X_3 = Project Monitoring and Evaluation

X_4= Need Analysis

Based on the findings, holding other variables constant, sustainability of renewable energy projects would be at 4.54, a unit increase in project design would result into 28.4% increase in sustainability of projects, a unit increase in project implementation would lead to 37.7% increase in sustainability of projects, a unit increase in project monitoring and evaluation would lead to 20% increase in sustainability of projects and a unit increase in need analysis would lead to 10.8% increase in sustainability of projects.

In view of the p and the t values, project design ($p=0.000<0.05$, $t=7.267>1.96$), project implementation ($p=0.000<0.05$, $t=6.325>1.96$), project monitoring and evaluation ($p=0.000<0.05$, $t=4.646>1.96$) and need analysis ($p=0.003<0.05$, $t=3.021>1.96$) all significantly influenced sustainability of projects in Nakuru county as their respective p values were less than 0.05 with t values greater than 1.96. Therefore, project implementation had the highest influence on sustainability of renewable energy products followed by project design, project monitoring and evaluation and lastly need analysis. This show that all the variables had a significant influence on sustainability of renewable energy products in Nakuru County.

CHAPTER FIVE

SUMMARY AND DISCUSSION OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The researcher summarizes the key findings of the study based on specific objectives in this section. The key findings are used in drawing relevant conclusions of the study. The findings are also used to formulate recommendations that have relevant impact on theory, policy and practice. The chapter also brings in suggestions areas that future studies can be carried on.

5.2 Summary of the Findings

The set to find out the influence of community involvement on sustainability of renewable energy projects in Nakuru County: A case of SCODE. The research questions included; what is the influence of community involvement in project design on sustainability of renewable energy projects in Nakuru County? How does community involvement in project implementation influence the sustainability of renewable energy projects in Nakuru County? What is the influence of community involvement in project monitoring and evaluation on sustainability of renewable energy projects in Nakuru County? How does community involvement in community need analysis influence the sustainability of renewable energy projects in Nakuru County? The researcher collected primary data using structured questionnaires. The response rate of the study was 181 respondents comprising of 14 Women Groups, 2 CBOs, 65 active entrepreneurs, 50 end users/customers of Scode and 15 employees.

The first specific objective was to establish the influence of community involvement in project design on sustainability of renewable energy projects in Nakuru County. From the findings, the organization focused on the goals of the project are tied to community needs as illustrated by a mean of 4.05 with standard deviation of 0.833. The organization focused on the targets of the project tied to community expectations as illustrated by a mean of 4.01 with standard deviation of 0.735. Project team ensured that the community played a good role in the entire process of the project as illustrated by a mean of 3.99 with standard deviation of

0.751. The county involved members of the community on project design result into timely delivery of project inputs in their organization as illustrated by a mean of 3.81 with standard deviation of 0.962. From regression results project design ($p=0.000<0.05$, $t=7.267>1.96$) significantly influenced sustainability of renewable energy products in Nakuru County as their respective p values were less than 0.05 with t values greater than 1.96.

The second specific objective of the study was to examine the influence of community involvement in project implementation on sustainability of renewable energy projects in Nakuru County. The findings established that their organization involved process management in project development as illustrated by a mean of 4.08 with standard deviation of 0.655. Project implementation in their organization ensured delivery of the espoused benefits to project beneficiaries by a mean of 3.99 with standard deviation of 0.753. The organization involved process management in project development as illustrated by a mean of 3.70 with standard deviation of 1.06. From regression results, project implementation ($p=0.000<0.05$, $t=6.325>1.96$) significantly influenced sustainability of renewable energy products in Nakuru County as their respective p values were less than 0.05 with t values greater than 1.96.

The third specific objective was to determine the influence of community involvement in project monitoring and evaluation on sustainability of renewable energy projects in Nakuru County. The study found out that monitoring and evaluation were carried out on a regular basis in their organization as illustrated by a mean of 4.13 with standard deviation of 0.480. Majority of the respondents agreed that involving locals from the community in project execution facilitated the process of M & E in their organization as illustrated by a mean of 4.07 with standard deviation of 0.492. Allowing local participation in monitoring and evaluation led to attainment of project deliverables as illustrated by a mean of 3.878 with standard deviation of 0.891. The findings of regression analysis showed that project monitoring and evaluation had ($p=0.000<0.05$, $t=4.646>1.96$), therefore, significantly influenced sustainability of renewable energy products in Nakuru County as their respective p values were less than 0.05 with t values greater than 1.96.

The last specific objective was to assess the influence of community involvement in need analysis on sustainability of renewable energy projects in Nakuru County. The study further established that community needs analysis helped the organization to gather information that was useful in meeting gaps of the community as illustrated by a mean of 3.86 with standard deviation of 1.19. Customer needs analysis helped the organization to gather information that was useful in meeting gaps of the community as illustrated by a mean of 4.22 with standard deviation of 0.482. The community in general was involved in need analysis to contribute to possible solutions to the problems identified as illustrated by a mean of 3.65 with standard deviation of 1.32. From regression analysis, need analysis ($p=0.003<0.05$, $t=3.021>1.96$) significantly influenced sustainability of renewable energy products in Nakuru County as their respective p values were less than 0.05 with t values greater than 1.96.

5.3 Discussions of the Findings

The study established that majority of the respondents agreed that their organization focused on the goals of the project are tied to community needs as illustrated by a mean of 4.05 with standard deviation of 0.833. Majority of the customers agreed that project implementation in their organization ensured delivery of the espoused benefits to project beneficiaries by a mean of 3.99 with standard deviation of 0.753. From regression results project design ($p=0.000<0.05$, $t=7.267>1.96$) significantly influenced sustainability of renewable energy products in Nakuru County as their respective p values were less than 0.05 with t values greater than 1.96. This is illustrated by Loock, Staake and Thiesse (2013) who states that goals are very essential because they give direction and promote enthusiasm. Involving the community in project design lead to success of the project (Epstein, 2013).

The organization involved process management in project development as illustrated by a mean of 4.08 with standard deviation of 0.655. Majority of the customers agreed that project implementation in their organization ensured delivery of the espoused benefits to project beneficiaries by a mean of 3.99 with standard deviation of 0.753. From regression results, project implementation ($p=0.000<0.05$, $t=6.325>1.96$) significantly influenced sustainability of renewable energy products in Nakuru County as their respective p values were less than 0.05 with t values greater than 1.96. According to Hou and Zhang (2013), community driven

projects contribute largely towards the development and sustainability of the community in general. Community developments rely on the local people who use their capital to organize and participate in the processes of developing the project (Berkes and Ross, 2013).

Monitoring and evaluation were carried out on a regular basis in their organization as illustrated by a mean of 4.13 with standard deviation of 0.480. Majority of the respondents agreed that involving locals from the community in project execution facilitated the process of M & E in their organization as illustrated by a mean of 4.07 with standard deviation of 0.492. The findings of regression analysis showed that project monitoring and evaluation had ($p=0.000<0.05$, $t=4.646>1.96$), therefore, significantly influenced sustainability of renewable energy products in Nakuru County as their respective p values were less than 0.05 with t values greater than 1.96. This is illustrated by Bedell, et al. (2013) who states that community involvement is a crucial instrument when developing a project. Reider et al. (2013) ascertain that when local people in the community are involved in the project execution, monitoring and evaluation of the projects becomes easier.

Community needs analysis helped their organization to gather information that was useful in meeting gaps of the community as illustrated by a mean of 3.86 with standard deviation of 1.19. Customer needs analysis helped the organization to gather information that was useful in meeting gaps of the community as illustrated by a mean of 4.22 with standard deviation of 0.482. From regression analysis, need analysis ($p=0.003<0.05$, $t=3.021>1.96$) significantly influenced sustainability of renewable energy products in Nakuru County as their respective p values were less than 0.05 with t values greater than 1.96. Spence and Liu (2013) states that it is important to involve the community at large so that a wide range of ideas and wisdom can be utilized fully towards formulating solutions to the identified problems when performing needs analysis.

5.4 Conclusions

From the findings, the study concludes that community involvement in project design was a major predictor of sustainability of renewable energy projects in Nakuru County. SCODE focused on the goals of the project that were tied to community needs and expectations. The

project team ensured that the community played a good role in the entire process of the project. The organization involvement of members of the community on project design result into timely delivery of project inputs. The findings are consistent with sustainability theory as it evaluates the social, economic and environmental viability of a given project beyond the finding period and the contributions of the community towards the development and implementation process.

The study concludes that community project implementation was had a major influence on sustainability of renewable energy projects in Nakuru County. SCODE involved process management in project development. Project implementation in the County ensured delivery of the espoused benefits to project beneficiaries. The organization involved process management in project development. The findings are in line with Hou and Zhang (2013) who states that community driven projects contribute largely towards the development and sustainability of the community in general. Community developments rely on the local people who use their capital to organize and participate in the processes of developing the project (Berkes and Ross, 2013).

The study further concludes that community involvement in project monitoring and evaluation was a major predictor on sustainability of renewable energy projects in Nakuru County. Monitoring and evaluation were carried out on a regular basis in their organization. Involving locals from the community in project execution facilitated the process of M & E in the County. Allowing local participation in monitoring and evaluation led to attainment of project deliverables. The findings is consistent with Stakeholder Theory which shows the contributions of stakeholders towards project development and implementation.

The researcher also concludes that community involvement in need analysis significantly influenced sustainability of renewable energy projects in Nakuru County. Community and customer needs analysis helped the organization to gather information that was useful in meeting gaps of the community. The community in general was involved in need analysis to contribute to possible solutions to the problems identified. The findings agrees with Spence and Liu (2013) who states that it is important to involve the community at large so that a wide

range of ideas and wisdom can be utilized fully towards formulating solutions to the identified problems when performing needs analysis.

5.5 Recommendations

On community involvement in project design, the study recommends that policy makers on the county ought to focus on the goals of the project that are tied to community needs and expectations. Project team ought to ensure that the community plays a good role in the entire process of the project. Organizations in the county ought to involve members of the community on project design result into timely delivery of project inputs.

On community project implementation, the study recommends that organizations in the county ought to involve process management in project development. Policy makers ought to ensure that the project implementation in the County delivers espoused benefits to project beneficiaries. Policy makers ought to involve process management team in project development and sustainability.

On community involvement in project monitoring and evaluation, the study recommends that monitoring and evaluation ought to be carried out on a regular basis in the county. Top management ought to involving locals from the community in project execution to facilitate the process of M & E in the County. Top management ought to allowing local participation in monitoring and evaluation for attainment of project deliverables.

On community involvement in need analysis, the study recommends that community and customer needs analysis ought to help the county to gather information that is useful in meeting gaps of the community. The community in general ought to be involved in need analysis to contribute to possible solutions to the problems identified. Policy makers ought to involve community in need analysis to help the county to meet local priorities in the most effective way.

5.7 Suggestions for Further Studies

The study focused on the influence of community involvement on sustainability of renewable energy projects in Nakuru County, future studies ought to be carried in different counties. The current study had a coefficient of adjusted determination R square of 0.632 which translates to 63.2%, the remaining 36.8% explains other factors beyond the scope of the current study that can be explored by future scholars and academicians.

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APPENDICES

Appendix I: Questionnaire for Employees at SCODE

SECTION A: GENERAL INFORMATION

1. Gender

Male [ ] Female [ ]

2. Level of Education

Diploma [ ]

Undergraduate degree [ ]

Post Graduate degree [ ]

Other… (specify) [ ]

3. Number of years worked in the current organization or business

Less than 3 years

3-6 Years

6-9 Years

Over 9 Years

SECTION B: COMMUNITY INVOLVEMENT IN PROJECT DESIGN

5. Below are several statements on how community involvement in project design influences sustainability of renewable energy projects. On a scale of 1-5.

Key: 5 is the highest level with which you agree with the given statement. (please put an X as appropriate)

Statement	1	2	3	4	5
Our project team ensures that the community plays a good role in the entire process of the project.					
During project design, our staff focus on getting public input					
Involving members of the community in project design result into timely delivery of project inputs in my organization					
In my organization, the goals of the project are tied to community needs.					
In my organization, the targets of the project are tied to community expectations					

SECTION C: COMMUNITY INVOLVEMENT IN PROJECT IMPLEMENTATION

7. Kindly indicate the extent of your agreement with each of the following statements on community involvement in project implementation. Use a scale of 1-5.

Statement	1	2	3	4	5
Project implementation in my organization entails putting into action the plans					
Project implementation in my organization ensure delivery of the espoused benefits to project beneficiaries					
Project implementation operationalizes ideas formulated in my organization					
My organization involves process management in project development					
Process management in project development enables the community to analyze their strengths before developing the project.					

SECTION D: COMMUNITY INVOLVEMENT IN PROJECT MONITORING AND EVALUATION

9. Indicate the extent of your agreement with each of the following statements on community involvement in in project monitoring and evaluation. Use a scale of 1-5.

Statement	1	2	3	4	5
Our organization guide community members on how to create action plans					
Before developing a project, the community is usually consulted first					
Involving locals from the community in project execution facilitates the process of M & E in my organization.					
Monitoring and evaluation are carried out on a regular basis in my organization					
Allowing local participation in monitoring and evaluation leads to attainment of project deliverables					

SECTION E: COMMUNITY INVOLVEMENT IN NEED ANALYSIS

11. Indicate the extent of your agreement with each of the following statements on community involvement in needs analysis. Use a scale of 1-5.

Statement	1	2	3	4	5
Involving community in need analysis helps my organization to meet local priorities in the most effective way					
Community needs analysis helps my organization to gather information that is useful in meeting gaps of the community					
During need analysis, my organization make changes to your project					
The community in general is involved in need analysis to contribute to possible solutions to the problems identified					

SECTION F: SUSTAINABILITY OF RENEWABLE ENERGY PROJECTS

11. Indicate the extent of your agreement with each of the following statements on sustainability of renewable energy projects. Use a scale of 1-5.

Statement	1	2	3	4	5
Our targeted beneficiaries are in a position to continue enjoying the benefits of the project without any assistance of external partners					
Our customers continue to enjoy the benefits after funding cycle					
Our customers feel entitled to the project					

THANK YOU

Appendix II: Questionnaire for Customers/ End Users of SCODE's Projects

SECTION A: GENERAL INFORMATION

1. Gender

Male [ ] Female [ ]

2. How many years have you benefited from SCODE'S projects?

Less than 3 years

3-6 Years

6-9 Years

Over 9 Years

SECTION B: COMMUNITY INVOLVEMENT IN PROJECT DESIGN

3. Below are several statements on how community involvement in project design influences sustainability of renewable energy projects. On a scale of 1-5.

Key: 5 is the highest level with which you agree with the given statement. (please put an X as appropriate)

Statement	**1**	**2**	**3**	**4**	**5**
Customers are actively involved in project design at SCODE					
Involving members of the community in project design result into timely delivery of project inputs in my organization					
The goals of the projects are tied to customer needs.					
The targets of the project are tied to customers' expectations					

SECTION C: COMMUNITY INVOLVEMENT IN PROJECT IMPLEMENTATION

7. Kindly indicate the extent of your agreement with each of the following statements on community involvement in project implementation. Use a scale of 1-5.

Statement	1	2	3	4	5
Project implementation in my community entails putting into action the plans					
Project implementation in my community ensure delivery of the espoused benefits					
My community operationalizes ideas formulated by SCODE					
SCODE involves the community in process management in project development					
Process management in project development enables the community to analyze their strengths before developing the project.					

SECTION D: COMMUNITY INVOLVEMENT IN PROJECT MONITORING AND EVALUATION

9. Indicate the extent of your agreement with each of the following statements on community involvement in in project monitoring and evaluation. Use a scale of 1-5.

Statement	1	2	3	4	5
Customers are guided on how to create action plans					
Before developing a project, the customers are usually consulted first					
Monitoring and evaluation are carried out on a regular basis in my organization					
Allowing customer participation in monitoring and evaluation leads to attainment of project deliverables					

SECTION E: COMMUNITY INVOLVEMENT IN NEED ANALYSIS

11. Indicate the extent of your agreement with each of the following statements on community involvement in needs analysis. Use a scale of 1-5.

Statement	1	2	3	4	5
Involving customer in need analysis helps the organization to meet local priorities in the most effective way					
Customer needs analysis helps the organization to gather information that is useful in meeting gaps of the community					
The customers in general are involved in need analysis to contribute to possible solutions to the problems identified					

SECTION F: SUSTAINABILITY OF RENEWABLE ENERGY PROJECTS

11. Indicate the extent of your agreement with each of the following statements on sustainability of renewable energy projects. Use a scale of 1-5.

Statement	**1**	**2**	**3**	**4**	**5**
Customers are in position to continue enjoying the benefits of the project without any assistance of external partners					

THANK YOU

Appendix III: Interview Guide for Women Groups and CBOs

SECTION A: GENERAL INFORMATION

1. How long have you benefited from SCODE's renewable energy projects?

2. What is your highest level of education?

SECTION B: COMMUNITY INVOLVEMENT IN PROJECT DESIGN

3. In what ways does SCODE involve you in project design?

4. What role do you play during the design of projects at SCODE?

5. What are some of the challenges identified as you were involved in project design at Nakuru?

SECTION C: COMMUNITY INVOLVEMENT IN PROJECT IMPLEMENTATION

6. In what way does the SCODE involve you in project implementation?

7. During your involvement in project implementation at Nakuru, what are some of the challenges you faced?

8. Howe best can the identified challenges in project implementation be solved?

SECTION D: COMMUNITY INVOLVEMENT IN PROJECT MONITORING AND EVALUATION

9. How does SCODE involve you in monitoring and evaluation of projects?

10. What are some of the activities you undertake during project monitoring and evaluation at SCODE?

11. Suggest measures that SCODE should take to increase local involvement in monitoring and evaluation.

SECTION E: COMMUNITY INVOLVEMENT IN NEED ANALYSIS

12. In what ways does SCODE involve locals during need analysis?

13. Kindly list some of the activities undertaken during need analysis?

14. What are some of the challenges you go through in your involvement in need analysis at your county Nakuru?

SECTION F: SUSTAINABILITY OF RENEWABLE ENERGY PROJECTS

15. Comment on sustainable utilization of SCODE's renewable energy projects?

16. How does SCODE ensure sustainability of their renewable energy projects in your local community?

THANK YOU

Appendix IV: Interview Guide for Entrepreneurs of SCODE

SECTION A: GENERAL INFORMATION

1. How long have you benefited from SCODE's renewable energy projects?

2. What is your highest level of education?

SECTION B: COMMUNITY INVOLVEMENT IN PROJECT DESIGN

3. In what ways does your SCODE involve you in project design?

4. What role do you play during the design of renewable energy projects at SCODE?

5. What are some of the challenges identified as you were involved in project design at Nakuru?

SECTION C: COMMUNITY INVOLVEMENT IN PROJECT IMPLEMENTATION

6. In what way does SCODE involve you in project implementation?

7. During your involvement in project implementation at Nakuru, what are some of the challenges you faced?

8. How best can the identified challenges in project implementation be solved?

SECTION D: COMMUNITY INVOLVEMENT IN PROJECT MONITORING AND EVALUATION

9. How does SCODE involve you in monitoring and evaluation of projects?

10. What are some of the activities you undertake during project monitoring and evaluation at Nakuru?

11. Suggest measures that SCODE should take to increase entrepreneurial involvement in monitoring and evaluation.

SECTION E: COMMUNITY INVOLVEMENT IN NEED ANALYSIS

12. In what ways does SCODE involve entrepreneurs during need analysis?

13. Kindly list some of the activities undertaken during need analysis?

14. What are some of the challenges you go through in your involvement in need analysis at your county Nakuru?

SECTION F: SUSTAINABILITY OF RENEWABLE ENERGY PROJECTS

15. Comment on sustainability of SCODE's renewable energy projects?

16. How does SCODE ensure their projects' sustainability by the local entrepreneurs?

THANK YOU

Appendix IV: Authorization Letter

Irene W. Kago,
P.O Box 19145 - 20100,
Nakuru.
Cell Phone: 0722338379

The Executive Director,
Sustainable Community Development Services
P.O. Box 13177-20100
Nakuru

4th October 2018

Dear Sir,

RE: REQUEST TO CONDUCT ACADEMIC RESEARCH

I am a student at the University of Nairobi. I am currently undertaking a research study to fulfil the requirements for the award of the degree of Master of Arts in Project Planning and Management on the "The Influence of Community Involvement on Sustainability of Renewable Energy Projects in Nakuru County", a case of Sustainable Community Development Services.

In my schedule, I will be visiting your organization to administer questionnaires to your program staff who will be sampled for this purpose to represent your organization. In my research, I will also include a sample of your Entrepreneurs, Women Groups, CBOs, and End Users/ Customers that are beneficiaries of SCODE's Solar, Biogas and Improved Cook stoves Projects within Nakuru County. The research will be used for academic purposes only. This, therefore, is to kindly request your approval to carry out the survey in your esteemed organization to enable successful completion of the project.

SCODE
P.O. BOX 13177-20100 NAKURU
TEL 020-2052483 / 2383506
04 OCT 2018
CELL: 0723-767265
Email: scode@scode.co.ke
Website: www.scode.co.ke

Yours sincerely,

Irene W. Kago

Appendix V: Letter Of Transmittal

Irene W. Kago,
P.O Box 19145 - 20100,
Nakuru.

Dear Respondent,

RE: ACADEMIC RESEARCH

I am a student at the University of Nairobi. I am currently undertaking a research study to fulfil the requirements for the award of the degree of Master of Arts in Project Planning and Management on the "The Influence of Community Involvement on Sustainability of Renewable Energy Projects in Nakuru County."

I have chosen to study Sustainable Community Development Services (SCODE) Projects in Nakuru County to provide information relating to sustainability of renewable energy projects. As a partner/ beneficiary, I humbly request you to fill the attached questionnaire. Kindly answer all questions as completely, correctly and honestly as possible. Your response will be treated with utmost confidentiality and will only be used for academic purposes. Thank you in advance for your co-operation.

Yours sincerely,

Irene W. Kago

Appendix VI: Authorization Letter-NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/18/19691/27135** Date: **4th December, 2018**

Irene Wanjiku Kago
University of University
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Influence of community involvement on sustainability of renewable energy projects,"*** I am pleased to inform you that you have been authorized to undertake research in **Nakuru County** for the period ending **3rd December, 2019.**

You are advised to report to **the County Commissioner and the County Director of Education, Nakuru County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nakuru County.

The County Director of Education
Nakuru County.

Appendix VI: Research Permit

THIS IS TO CERTIFY THAT:
MISS. IRENE WANJIKU KAGO
of UNIVERSITY OF NAIROBI,
19145-20100 Nakuru,has been
permitted to conduct research in
Nakuru County

on the topic: *INFLUENCE OF COMMUNITY INVOLVEMENT ON SUSTAINABILITY OF RENEWABLE ENERGY PROJECTS*

for the period ending:
3rd December,2019

Permit No : NACOSTI/P/18/19691/27135
Date Of Issue : 4th December,2018
Fee Recieved :Ksh 1000

.....
Applicant's Signature

.....
Director General
National Commission for Science, Technology & Innovation