ASSESSING THE SOCIO-ECONOMIC EFFECT OF DOMINION FARM IN URANGA DIVISION, SIAYA COUNTY, KENYA

BY

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MASENO UNIVERSITY

DECLARATION

Declaration by the Candidate

This research project is my original work and has not been presented in any university for an award.

Signature _____ Date _____

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PG/MA/064/2010

Declaration by the Supervisors:

This research proposal has been submitted for examination in the School of Education with my approval as the University supervisor.

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DEDICATION

I dedicate this research project to my beloved wife Mrs. Jane Agola, my children Jeff Baraka, Justine Junior, and Jevani Hawi whose patience, understanding, and support have been my source of inspiration and strength.

ABSTRACT

Limited land resource has resulted into poor conditions of locals in Uranga Division, Siaya County, Kenya leading to reclamation, conversion, or development of wetlands. Uranga Division has seen the reclamation, development, and conversion of wetland in Yala swamp through the Dominion Farm Project. While numerous studies have been done in this area on the impact on the ecosystem and soil structure, very little has been done on the socio-economic effects of dominion farm activity in Yala wetland. Therefore, the purpose of this study was to assess socio-economic effect of Dominion Farm in Yala swamp. The specific objectives included to examine the economic changes brought by the project on the lives of people of Uranga Division, assess social changes brought by the project on interaction of people in Uranga Division, and evaluate the level of benefit sharing to the community. The conceptual framework indicates that economic and social effectson the community were identified in addition to examining the level of benefit sharing principle. While anchoring the study on benefit sharing model, corelational and mixed mixed methodoly research designs were employed. The target population included all the households in Uranga Division, which were represented by a sample of 398participants. The sample included 385 households (house heads were units of analysis), 10 locals, and 3 representatives from Dominion Company. Instrument for data collection was questionnaire, FGD, and interview schedule. Validity of instruments was determined by experts in School of Planning and Architecturewhose input was included. Reliability of instruments was determined by Cronbach alpha coefficient at 0.7 threshold from which a value of .89 was obtained implying that it was very reliable. Quantitative data was analysed using frequency counts and percentages, and Pearson Correlation. Qualitative data was transcribed and analysed in emerging themes and sub-themes. The study established significant positive relationship between use of wetland and economic impact (r = .713), use of wetland and social impact (r = .607), use of wetland and level of benefit sharing (r = .611) among households in Uranga Division. Qualitative findings also confirmed that other than different uses of wetlands, the Dominion Farm Project activities have had significant socio-economic impacts with mixed reactions on benefits sharing principles. The study concluded that there were positive changes brought by economic, social and benefit sharing practices of Dominion Firm tothe community and recommended that there should be enhanced benefit sharing.

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LIST OF ABBREVIATIONS AND ACRONYMS

AHP	:	Analytic Hierarchy Process
CBD	:	Convention on Biological Diversity
DFP	:	Dominion Farm Project
DQASO	:	District Quality Assurance and Standards Office
EIA	:	Environmental Impact Assessment
FGD	:	Focus Group Discussion
IGA	:	Income Generating Activities
LBDA	:	Lake Basin Drainage Authority
MEA	:	Millennium Ecosystem Assessment
NEMA	:	National Environmental Management Authority
SD	:	Standard Deviation
SPSS	:	Statistical Package for Social Sciences
SSA	:	Sub-Saharan Africa
WTA	:	World Trade Authority

DEFINITION AND OPERATION OF TERMS

Agriculture: Also called farming or husbandry is the cultivation of animals, plants, fungi, and other life forms for food, fiber and other products used to sustain life

Community Development: A set of values and practices which plays a special role in overcoming poverty.

Economic Values: A measure of the benefit provided by a good or service to an economic agent.

Food Security: The World Food Summit of 1996 defined food security as existing "when all people at all times have access to sufficient, safe, nutritious food to eat.

Livelihoods: A means of securing the necessities of life; a set of economic activities involving self-employment

Social Values: Are evaluative beliefs that synthesize affective and cognitive elements to orient people to the world in which they live.

Sustainable Development: This is the ability of the presentation to meet their needs without compromise on the ability of the future generation meeting their needs.

Wetland: A wetland is a land area that is saturated with water, either permanently or seasonally.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Due to population growth, poverty, and development efforts, wetlands are increasingly being utilized and transformed, not least so in Sub-Saharan Africa (SSA) (Luttrell, et. al. 2013). Wetland development projects significantly affect ecological productivity and economic output and more often than not generate conflicts concerning control of the resources between different users; for instance pastoralists and farmers or small-scale farmers and large-scale capitalist farmers (Pradhan, Providoli, Regmi, and Kafle, 2010). Wetlands provide valuable ecosystem services to society. Despite this, in many parts of the world, wetlands have been degraded or lost, and demand for development, particularly from agriculture is putting pressure on many of those that remain (IWMI, 2006). Achieving environmental sustainability and at same time satisfying the need for increased food production, enhanced economic growth and poverty reduction, is an issue of growing importance the world over (Vhugen and Miner 2011).

In SSA, where most economies are largely agrarian-based, the demand for arable farmlands continues to be a thorny issue for many countries (Luttrell, et. al. 2012). The scarce arable land faces competition, soils are becoming exhausted and water becoming increasingly scarce (Nkhata et al. 2012). The growing populations, completion for fertile farming lands and limited access to any available farmland for many in SSA has led to people invading wetlands and other marginal areas for agricultural and other transforming activities. In this fight for survival, they often engage in unsustainable use of these natural resources, causing degradation and other adverse effects (Adams, 1995). The developing world while effecting their development programs, lacks the necessary requisite skills and hence end up inviting foreign investors with

advanced technology and related resources to effect such ‘developments’ on wetlands and other fragile natural resources (Ong’ang’a, 2005).

Despite the realization and wide documentation of their importance for biological, hydrological, economic and socio-ecological functions, they are some of the most threatened ecosystems in the world (Terer et al., 2004; Gichuki et al., 2001; Thenya 2005). Wetland drainage and associated changes not only reduce their total size, but also impact adversely on their water regimes thereby altering the habitats with far-reaching consequences to their floral and faunal biodiversity (Thenya 2005). While most developed countries have established controls restricting further wetland conversion, and even initiated habitat restoration, in many developing countries, wetland conversion is seen as a strategy to gain more land for agricultural purposes (Ong’ang’a et al., 2001). In more than half of the wetlands listed under the Ramsar convention to be of international importance, agriculture is considered to be a major cause to their conversion (McNeely, 2003). The dilemma is how to attain best use of these wetland resources and be able to address trade-offs adequately (Luttrell, et. al. 2013). This remains a general problem and a challenge for the developing world and SSA in particular.

Kenya like many other countries in Africa faces similar problems and challenges regarding wetlands (Ong’ang’a, 2005; Abila, 2005). Although endowed with abundant natural resources and a wide range of ecosystems which support a high diversity of species and habitats, the disparity in the potential of the different natural resources has encouraged agriculture and human settlements in new and often productive areas, including wetlands (Crafter et al., 1992; Kairu, 2001; Gichuki, 2003; Abila, 2005). In Kenya wetlands cover approximately 14000 square km, which is about 3% of the country’s surface area.Despite their valuable functions, wetlands are often regarded as ‘wastelands harbouring disease vectors (Ong’ang’a et al., 2001). It has also

been argued that most studies conducted on Kenyan wetlands have laid much emphasis on natural sciences largely on nutrient dynamics, water quality, aquatic ecology and fisheries, hydrology and catchment's modelling and vegetation dynamics with very little to do with human welfare and utilization impacts (Ong'ang'a, 2005). On the same note these studies have not explored much into details of livelihood strategies for the local communities with respect to their utilization, conservation and management (Gichuki, 2003; Thenya, 2006, Ong'ang'a et al., 2001; Ong'ang'a, 2005).

Yala swamp, the main focus of this study, is a place where most of the above conditions prevail though at a local scale. The area is experiencing population growth, low literacy levels, escalating poverty, ecological stress and limited productive resource base (Gichuki et al., 2001). The main natural resource available, the wetland, is increasingly becoming scarce as competition for control and access to, and its utilization increases amongst multiple and contested uses by various stakeholders within the local community (Nkhata et al. 2012). The latest incidence is the entry of big-scale investment in agricultural activities, which has elicited new reactions, challenges, opportunities and constraints, conflict over use and control, dislocation and threats to traditional livelihoods and environmental destruction (Terer et al., 2004). The impact of these activities on the livelihoods of the local community is a case at hand. The potential for the swamp to accommodate many uses has attracted a lot of interest groups including the large-scale agriculture company, Dominion Farms (K) Ltd, environmentalist and Government agencies all of whom are putting a claim to the wetland's resources.

The Yala Swamp interest started in 2003 when the county councils of Bondo and Siaya granted a 25 year lease to Dominion Farms Limited, a subsidiary of Dominion Group of Companies based in Edmond, Oklahoma USA. The National Environmental Management Authority (NEMA)

approved the company's Environmental Impact Assessment (EIA) Report specifically for rice irrigation on a 2,300 hectare-area (about 12% of the Yala Swamp. Immediately thereafter, Dominion Farms Ltd began building irrigation dikes and a weir, airstrips and roads, and announced plans to build a hydroelectric plant and a major aquaculture venture, including fish farms, a fish processing factory and a fish mill factory, all of which is believed shall have significant social and economic impact on the population besides some impact to the ecosystem. The establishment of Dominion Farm Projects has since had socio-economic effects on the community in Uranga Division, Siaya County.

1.2 Statement of the Research Problem

Poverty is one of the many reasons for reduced living standards in Siaya County. According to the Kenya National Bureau of Statistics (KNBS) (2012) and a survey done by KNBS and UNICEF in 2012 indicated that whereas 45% of Kenyans live below the poverty line, Siaya County has 38% of the population live below the poverty line. With increasing levels of poverty in Siaya County, there has been a call to come up with ways of alleviating the same. One of the many ways being used in alleviating poverty within Siaya country is irrigation-based agriculture. Well managedirrigation systems in the developing world have been apowerful force for poverty alleviation within and outsideagriculture. However, the sustainability of irrigation projectsin rural areas is being questioned, both economically andenvironmentally.

The increased dependence on irrigation hasnot been without its negative environmental effects such asunsound objective assessments of their environmental and social implications. Due to population growth, poverty and development efforts, wetlands are increasingly being utilized and transformed. Luttrell et al. (2012) posits that while rural communities have long recognized the value of wetlands asa resource for household livelihoods, the more economically. About 6900ha

of land leased which is more than 1/3 of the total swamp area, has led to loss of traditional grazing land on the upper part of the swamp as well as loss of water for the communities. Over 60% of the riparian community heavily depends on the wetlands for grazing. The loss of grazing land is already impacting negatively on their livelihoods.

Most part of the swamp taken by the farm is host to medicinal trees and shrub species, the quantity and quality of papyrus has also been threatened thus interference with flora and fauna. Other parts of the swamp used as shrines and for other cultural issues have been delineated (Luttrell, et. al. 2012). The large offer of temporary employment by Dominion Farms, coincides with the planting season, is removing communities' from their farms and is bound to have a negative impact on household food production (Nkhata et al. 2012). This is further aggravated by the fact that 80% of Dominion's labour force is composed of women who are also traditionally the backbone of household food security (Ong'ang'a, 2005). For the fishing community, the loss of the wetlands which is a habitat and breeding ground for various species of fish just as reduced energy source from fuel wood is bound to further have negative impacts on them.

Consequently, the possibility that the farm's effort has brought new socio-economic benefits for the people has been taken for granted and systematically devalued (Ong'ang'a et al., 2001). The consultations which have taken place between the community, the county councils and the company have not adequately addressed the socio-economic aspect (Gichuki et al., 2001). The majority of the communities are not well informed of details of livelihood strategies and the implications on their daily lives (McNeely, 2003).Thus there exists a gap in knowledge and practice of this nature. It is these problems related to community livelihoods in the Yala swamp that this study endeavoured to investigate. The problem therefore was to assess the impact of the

establishment of Dominion Farm Projects on the socio-economic values of the local population with respect to Uranga Division.

1.3 Purpose of the Study

The purpose of the study was to assess the socio-economic effect of Dominion Farm in Uranga Division, Siaya County, Kenya.

1.4 Objectives of the Study

The specific objectives are as follows:

i) To examinethe economic changes brought by the project on the livelihood of people of Uranga Division, Siaya County.
ii) To assess the social changes brought by the project on interaction of people in Uranga Division, Siaya County.
iii) To evaluate the level of benefit sharing to the community in Uranga Division, Siaya County.

1.5 Research Questions

i) What are the economic changes brought by the Dominion Farm project on the livelihood of people of Uranga Division?
ii) What are the social changes brought by the Dominion Farm project on interaction of people in Uranga Division?
iii) What are some of the benefits of the Dominion Farm Projects that are shared with the community?

1.6 Justification and Significance of the Study

Several studies (McNeely, 2003; Gichuki et al., 2001; and Terer et al., 2004) have suggested that in areas where arable land is limited; wetlands can be reclaimed, converted, developed. Different scholars (Ong'ang'a, 2005; Nkhata et al. 2012; and Pradhan, et. al., 2010) believe that with reclaimed, converted, and developed wetland, various communities that have experienced shortage of food owing to inadequate land resource may increase their agricultural activities.

Despite the extensive research on conversion of wetlands (Luttrell, et. al. 2013), the main focus has always been on ecosystem (Vhugen & Miner 2011). Very little has been done on the advantages brought about by conversion of wetland (Terer et al., 2004; Nkhata et al. 2012; and Luttrell, et. al. 2013). Whereas some researchers argue against the conversion of wetlands into arable lands on the basis of destroying ecosystem (McNeely, 2003), there is a need to establish some of the social and economic benefits associated with the same. It is through understanding socio-economic effects of wetland conversion that various communities are likely to be influenced into increasing the available arable land. Consequently, the present study focused on establishing the socio-economic effects of converting the Yala Swamp by the Dominion Company.

Since its inception in 2003, the Dominion farm project has attracted critics and admirers in equal measure. Media reports have painted the project both positively and negatively in different quarters. Most of the media attentions have been focused on local politics and the personalities around its establishment and management. Various scholars, reports, and press releases have been focusing on the negative impact on the environment and biodiversity rather than the possible positive impact on the living standard of the beneficiaries (Vhugen & Miner 2011; Nkhata et al. 2012; and Gichuki et al., 2001). However, limited scientific studies have been conducted to ascertain these facts. Furthermore there have been no specificobjective studies to date that have attempted to establish the positive or negative impact of the project to Uranga Division a small village in the bigger Yala Swamp catchment. Thus this study has provide an in depth perspective in the Social, economic and environmental effect of the DFP in Uranga Division in Siaya County. This may allow extrapolation to neighboring areas but most

importantly could excite interest in similar studies in the remaining areas within the Yala Swamp and other wetland areas in Kenya.

1.7 Study Scope

Dominion farm Project is situated in both Siaya and Bondo District but the study was conducted in Uranga Division, Siaya District, due to the fact that the Project Administration Facilities are situated in this area. In addition, the study focused on economic values, social values, and benefit sharing aspects despite there being many other aspects related to development or conversion of wetlands. In this study, social values are evaluative beliefs that synthesize affective and cognitive elements to orient people to the world in which they live. Their evaluative element makes them unlike existential beliefs, which focus primarily on matters of truth or falsehood, correctness or incorrectness. On the other hand, economic value is a measure of the benefit provided by a good or service to an economic agent. While focusing on Yala swamp, the study decided to perform a cross-sectional research in which data was collected at a particular point in time. Units of analysis in this case were the households whereas the units of observation were the heads within the various households in Uranga Division.

1.8 Limitations and Delimitations of the Study

1.8.1 Limitations

The main limitations the study encountered are that:

i) Some respondents were away during data collection,
ii) The conclusions drawn and discussed in this study were limited to the information gathered from the sampled community members, key stakeholders and the data collected were compared to existing baseline reports on the impact of the DFP in Siaya County.
iii) Putting together of concise sample frame with authentic and legitimate respondents who fit the selection criteria set by the study was a significant challenge to the study.

iv) Mobilization and tracking of the respondents was also a major hurdle.

1.8.2 Delimitations

In cases where some respondents were away, the researcher employed the revisiting approach until all the targeted participants responded. In order to make the findings more reliable and valid, other than gathering data using questionnaires, the study also collected secondary data from other documented sources. Secondary data in this case assisted in verifying and triangulating the primary data. Putting together a concise sample frame entailed adoption of purposive sampling technique. One of the main advantages of purposive sampling is that it required the researcher to work with the provincial administration together with point persons in the community who helped in identifying the respondents and mobilized them for participation in the study. The researcher used secondary data from other documented sources to verify and triangulate the information gathered.

1.9 Definition of Key Operational Terms

Agriculture: Also called farming or husbandry is the cultivation of animals, plants, fungi, and other life forms for food, fiber and other products used to sustain life

Community Development: A set of values and practices which plays a special role in overcoming poverty.

Economic Values: A measure of the benefit provided by a good or service to an economic agent.

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Social Values: Are evaluative beliefs that synthesize affective and cognitive elements to orient people to the world in which they live.

Sustainable Development: This is the ability of the presentation to meet their needs without compromise on the ability of the future generation meeting their needs.

Wetland: A wetland is a land area that is saturated with water, either permanently or seasonally.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This study focused on assessing the socio-economic effect of Dominion Farm in Uranga Division, a part of Yala Swamp. This chapter provides a review of literature on aspects under study. The main aspects under study include economic effects of developing wetlands, social effects of developing wetlands, and benefits sharing to community within the developed wetlands.

2.2 Economic Changes of Developing Wetlands

Change of wetlands into huge scale rural creation has been connected to financial ramifications on the vocations of country groups. In their examination, Jogo and Hassan (2010) affirmed that wetlands in Southern Africa have kept on being corrupted and lost through transformation to agribusiness and other utilize. The specialists built up a natural monetary model in light of the framework progression structure equipped for animating the effects of option approach administrations on wetland working and financial prosperity. The consequences of their examinations showed that wetland administrations, which incorporate yield generation and regular asset gathering are between connected with exchange chances required through their opposition for land, work, and water assets. Horticultural exercises done on changed over wetlands were observed to be having huge effect on the employments of neighboring groups. What's more, the investigation discovered that wetland transformation gives more arable land, which aids enhancement of the employments notwithstanding improving wetland preservation. The other finding was that when wetlands are moderated, there is huge misfortunes in the monetary welfare of neighborhood populace unless bolstered with enhancement of business sources. Be that as it may, the investigation embraced a work area based research and not

essential research as on account of present examination, which gives direct data as well as tends to the particular issue identifying with Dominion Farm Project in Yala Swamp. In a Conference of the International Society of Ecological Economics, Morardet, Masiyandima, Jogo, and Juizo (2010) conveyed a paper introducing a coordinated dynamic reproduction show speaking to working of a little South African wetland, the Ga-Mampa. In this paper, Morardet et al. (2010) recognized six intuitive divisions, in particular, hydrology, trim generation, edit financial matters, utilization of common wetland assets, arrive utilize choices, and group prosperity. The creators contended that utilization of wetlands helps with satisfying interest for sustenance, interest for money, and biophysical drivers, for example, soils, precipitation, groundwater, and surface streams. Also, the paper demonstrated that utilization of wetlands impacts financial returns; thus, influencing jobs. In any case, the paper was not created in view of real information from the field rather through survey of writing. The present examination tried to accumulate information from the family units to find out the financial impacts of transformation of Yala overwhelm in the Dominion Farm Project.

Essentially, Jogo (2011) led an investigation with two particular targets; to decide the elements that impact country family unit work designation and supply choices for contending job exercises inside the wetland and to build up a natural monetary model equipped for setting up the connection amongst financial and environmental segments in wetlands. A study of 143 family units was directed in the Limpopo premise of South Africa. Disconnected relapse display was utilized as a part of dissecting the information. Results showed that poor families that have less ability to partake in off-cultivate business depend intensely on homestead and wetland exercises for their employment. The suggestion here is that with upgraded ecological assurance over exercises to change over wetlands, there is probability of expanded neediness among the family

units. The assessed think about by Jogo (2011) just utilized quantitative research technique, which did not give the members chance to give their perceptions, opinions, and perspectives. The present included the subjective viewpoints onto quantitative research keeping in mind the end goal to have perspectives and feelings of various partners.

Li, Zhen, Huang, Wei, Yang, and Uthes (2014) noticed that to decrease the threat of surges, China's central government has pushed a wetland recovery program that adherents cultivating zone to wetlands. This examination separates the budgetary impacts of this program, with a particular focus on the recognizing verification of relevant accomplices, the preparation of the regional agriculturists to recognize fiscal pay and the fitting compensation weight of the 12 areas of the region in light of their favorable circumstances from wetland recovery and their portion limit. Li et al. (2014) found that the compensation of the agriculturists had extended after program utilization however that this extension was basically a direct result of a development in off-develop pay making activities of more young people. The preparation to recognize (WTA) eco-pay was 13,912 Yuan for every family consistently, of which only 39% was compensated for by the program. Two sub-areas could be isolated: the western region, which is all the more front line similar to financial headway and has a higher surge resistance restrain, and the eastern locale, which demonstrates a lower change level, lacking system and a lower surge resistance constrain. Despite the fact that, the reviewed look at concentrated on the impact of remodeling arable lands into wetlands and not wetlands into arable land. The prevailing study is inquisitive about transformation of wetlands into arable lands.

2.3 Social Changes of Developing Wetlands

Other than economic effects of development of wetlands, researchers have also been concerned with social effects. In their study focusing on GaMampa wetland, South Africa, McCartney,

Morardet, Rebelo, Finlayson, and Masiyandima (2011) report the discoveries of an incorporated investigation at the GaMampa wetland in South Africa. The examination joined hydrological, arrive cover and work examinations, and in addition financial valuation of the key provisioning administrations given by the wetland. In the report, McCartney et al. (2011) noted that the GaMampa, a palustrine wetland, contains under 1% of the catchment however is broadly accepted to make a noteworthy commitment to dry-season waterway stream in the Mohlapitsi River, a tributary of the Olifants River, in South Africa. The commitment of the GaMampa wetland to dry-season stream in the Mohlapitsi River and the effect of expanding horticulture on its hydrological working were examined. Monetary examinations demonstrated that the net money related estimation of the wetland was US$ 83 263 of which farming include 38%. Hydrological investigations demonstrated that the Mohlapitsi River contributes, all things considered, 16% of the dry-season stream in the Olifants River. Be that as it may, the wetland contributes, at most, 12% to the expansion in dry-season stream seen over the span of the waterway in which the wetland is found. The rest of the expansion begins from groundwater coursing through the wetland. Moreover, regardless of the transformation of half of the wetland to horticulture since 2001, there has been no measurably noteworthy decrease in dry-season stream in the Mohlapitsi River. Even though the reviewed study establish changes in social lives of residents given the water, the study was done purely on secondary research. There is a need to use primary research to gather first-hand information on social effects of converting wetlands.

In another study, Kumar et al. (2011) argued that the savvy utilization of wetlands is relied upon to add to biological honesty, and also to secure employments, particularly of groups subject to their biological system administrations for sustenance. This paper provided a calculated structure equipped for analyzing the objectives of wetland administration, destitution diminishment and

supportable employments. The system highlights natural character as a social build and, with the thought of wetlands as settings for human prosperity, fabricates an idea for surveying the between linkages between environment administrations and occupations. The esteem and more extensive relevance of our structure is then tried by applying it to a contextual investigation from India (Lake Chilika) to assess how much the common objectives of enhancing both human prosperity and the biological character of wetlands have been accomplished. The contextual analysis maps changes in human prosperity actuated in the bowl groups because of outside powerlessness settings, foundations and opportunities. The reviewed study, despite explaining social effects of converting wetlands based on changes in human prosperity, social build, and enhanced link between administrators and occupations, used only secondary data, which could suffer from being outdated and failing to tackle the specific issue. The current research adopted primary research, which other than being first-hand, focused on the specific social effects of DFP in Yala swamp.

Dias and Belcher (2015)focused on information the development of effective wetland conservation initiatives in western Canada. A choice experiment was utilized to assess the estimation of changes in wetland biological community administrations to occupants of the territory of Saskatchewan. With an attention on water quality, natural life living space and riparian zone width, among a bunch of wetland biological system administrations, we appraise halfway esteems for wetland protection. Arbitrary parameter log it models, with and without collaboration terms, are utilized to gauge readiness to pay esteems for wetland environment administrations. Repaying surplus welfare measures are likewise assessed for administration situations speaking to changes in the quality and amount of wetland biological system administrations. The outcomes propose that society credits positive incentive to the wetland

biological community administrations with water quality ascribed the best esteem. At long last, we find that while Saskatchewan occupants feel that landowners and society have a duty to protect wetlands on exclusive land, society ought to be in charge of half or a greater amount of the expenses of conservation activities, in this manner supporting freely financed wetland arrangement.

Adekola, Mitchell, and Grainger(2015) investigated the value and distribution of wetland ecosystem service benefits and costs across the three main stakeholder sectors (local community, government and corporate). Results demonstrate that the net financial estimation of the wetlands is $11,000 per delta family of which $9000 was created as money salary supporting family unit exercises, for example, training and social insurance. The aggregate yearly benefit of provisioning administrations to nearby individuals is roughly $25 billion, around three times the estimation of oil creation in the district. In any case, neighborhood groups additionally bear around 75% of the natural expenses of oil extraction, equal to around 19% of the oil business benefit. Neighborhood individuals, who encounter significant financial hardship and need elective salary sources, get little remuneration from the oil area. Reviewed study adopted quantitative research, which did not provide room for unit of observations and analysis to give their opinions and views. The current study conducted an interview to gather opinions and views relating to social effects of converted wetlands.

2.4 Benefit Sharing to Community amongst Wetlands

Owing to the fact that conversion of wetlands bring on board a number of stakeholders, there has always been the tendency of benefit sharing. Benefit sharing with the community has attracted significant interests from different scholars. Nkhata, Mosimane, Downs borough, Breen, and Roux (2012) explored and interpreted relevant literature to construct a typology of benefit

sharing arrangements for the governance of social-ecological systems in developing countries. The typology involves three nonexclusive classifications of advantage sharing courses of action: collective, advertise situated, and populist. We battle that the three classifications give a valuable premise to investigating and ordering the diverse societal game plans required for administration of social-natural frameworks.

The typology shown by Nkhata et al. (2012) is established on a related arrangement of unequivocal suppositions that can be utilized to investigate and better comprehend the linkages among biological community administrations, advantage sharing, and administration. Issues that are firmly identified with manageability in creating nations shape the center premise of our presumptions. Our point is not to compose an authoritative composition, but rather to start banter about and draw in continuous exchange on administration and advantage partaking in the field of social-natural frameworks. The reviewed literature by Nkhata et al. (2012) focused on literature review and did not use primary information that gives both first-hand and specific data as in the case with the current study. The study also looked at social-ecological systems in general without specifying as in the case of the current study.

Herath (2004) in his study noted that Wetlands in Australia give impressive biological, financial, ecological and social advantages. In any case, the utilization of wetlands has been aimless and noteworthy harm to numerous Australian wetlands has happened. Amid the most recent 150 years 33% of the wetlands in Victoria have been lost. An obvious issue in wetland administration is the scarcity of inclusion by partners. This paper utilizes the Analytic Hierarchy Process (AHP) to join partner targets in the 'Wonga Wetlands' on the Murray River. The examination demonstrates that the AHP can expressly fuse partner inclinations and numerous destinations to assess administration choices. The AHP additionally gives a few ways to deal with approach

producers to touch base at strategy choices. Nonetheless, the study was wide and concentrated on various aspects of wetlands without establishing the specific aspects of benefit sharing amongst the various involved stakeholders. What's more, it was not empirical in nature; hence, there was no quantitative justification of the benefit sharing concept amongst stakeholders in the wetlands.

From a different perspective, Chomba and Nkhata (2016) performed examination to uncover the basic unpredictability of advantage sharing of biological community products and ventures among various performing artists in the Barotse Floodplains of Zambia. This contextual investigation depends on the basis that speculations of property rights have not been enough used to comprehend and execute advantage sharing courses of action in normal assets administration. The examination was expressive, longitudinal and subjective in nature. Data collection techniques used in the study included in-depth interviews and documentary sources using thematic analysis for coding and analysis. The study lacked quantification of the aspects of benefit sharing as it was in the current study.

The examination by Chomba and Nkhata (2016) uncovered a staggering variety of advantage sharing results between times because of shifting setup of packs of property rights. The variety in times delineates a basic connection between the foundation and implementation of packs of property rights and advantage sharing results. This subsequently gives experiences into the outcomes of neglecting to perceive, set up and authorize groups of rights in advantage sharing courses of action. Along these lines, the contextual investigation represents how the hypothesis of property rights offer a valuable viewpoint through which to better comprehend and oversee advantage sharing game plans for socio-biological frameworks. Since it focused mainly on qualitative information, there was no quantitative justification of benefit sharing levels within the

floodplains. The current study adopts a quantitative research, which is augmented by qualitative information.

2.5 Summary of Knowledge Gaps

In synopsis, there are different studies so far performed in a bid to establish socio-economic effects of wetland conversion, transformation, and organisation. However, there are knowledge gaps that need to be filled by the present study. Whereas some of them were not developed in view of real information from the field rather through survey of writing, there are others that just utilized quantitative research technique, which did not give the members chance to give their perceptions, opinions, and perspectives. In addition, a number of review studies concentrated on the impact of remodeling arable lands into wetlands and not wetlands into arable land. It is also important to note that even though a number of reviewed studies established changes in social lives of residents given the water, the study was done purely on secondary research. In this respect, there was a need to use primary research to gather first-hand information on social effects of converting wetlands. What's more, there was a need to have a combination of quantitative and qualitative research designs such that the effects are not only explained numerically but also provide a vista of understanding perceptions, emotions, attitudes, and views of the various stakeholders that are likely to be affected by conversion, transformation, and organization of wetlands.

2.6 Conceptual Framework

A conceptual framework is an analytical tool with several variations and contexts. It is used to make conceptual distinctions and organize ideas. Strong conceptual frameworks capture something real and do this in a way that is easy to remember and apply as explained by Creswell

and Plano Clark (2007).The study was guided by a conceptual framework that shows the inter-relationship between variables in the study.

Figure 2.1 shows the conceptual framework of the study. The independent variables included in the study were economic effects, social effects, and benefit sharing. On the other hand, the dependent variable is Dominion Farm Project, which includes the community and other stakeholders. Under the independent variables, there are a number of effects identified from the literature review. These effects are associated with wetland conversions. As a result, the study sought to establish whether these effects have been experienced by the community in Uranga Division, Siaya County following the conversion and development of the Yala Swamp. Government policies, cultural factors, and environmental factors have been identified as intervening factors. In other words, these factors are likely to interfere with the socio-economic effects of the Dominion Farm Project on the community.

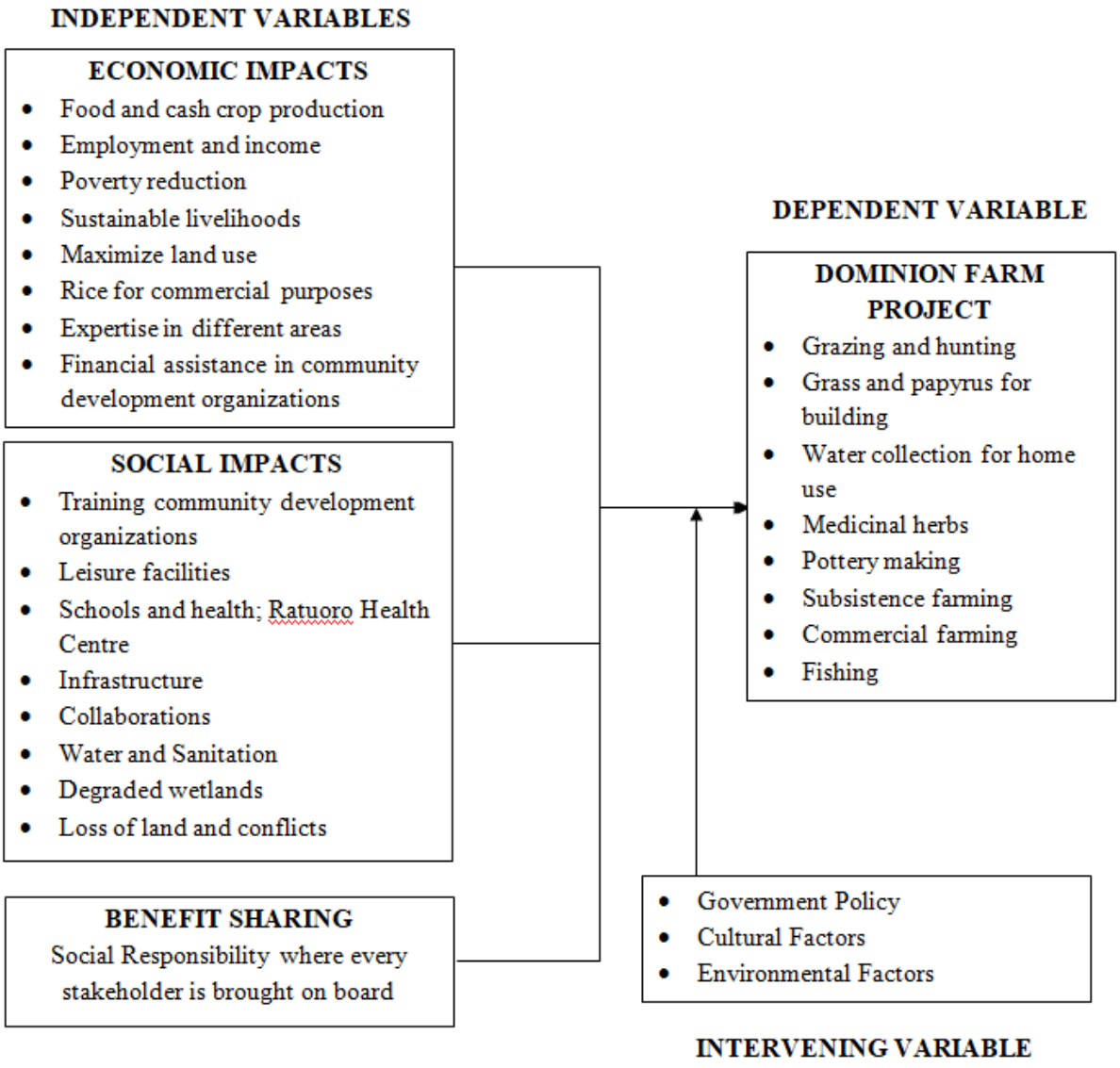

Figure 2.1: Conceptual Framework
Source: Researcher

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter provides an understanding of methods, principles, and techniques adopted in order to gather data as well as information towards attaining study objectives. The section provides an illustration of research design, study area, target population, sampling technique and size, data collection technique, data analysis methods, presentation, and ethical considerations.

3.2 Study Area

The study area was Uranga Division in Siaya County, Kenya. **Fig. 3.1** provides the study map. Siaya County is one of the 47 devolved systems of governance in Kenya.

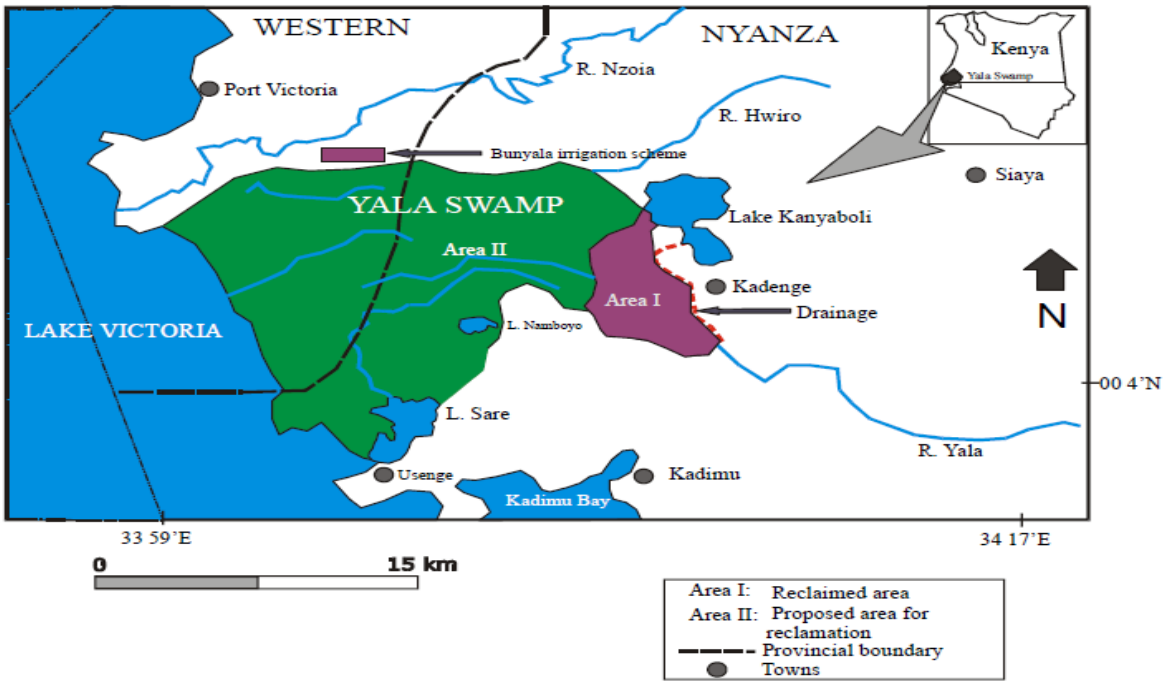

Figure 3.2: Map of the Study Area

Being county number 41, Siaya is one of the counties of former Nyanza Province. Siaya County is located in the Nyanza Region within The Lake Victoria Basin and borders Busia County to the North, Kakamega County to the Northeast, Vihiga County to the East, Siaya County to the South East with Lake Victoria to the South and West. It covers an area of 2,530.5Km2 and it has a population of 842,304. Siaya County lies between latitude 0° 26' to 0° 18' north and longitude 33° 58' east and 34° 33' west. Uranga Division is one of the three divisions of Siaya sub-county apart from Boroand Karemo. It lies between latitude $0^0$26' to $0^0$18' north and longitude $33^0$58'east and $34^0$33'west.

3.3 Research Design

The study adopted amixed method and correlational research designs. Mixed methods research design entailed combination of quantitative and qualitative research approaches while correlational research design entailed establishing associations among variables. Mugenda and Mugenda (2009) describe mixed method research design as a systematic empirical enquiry into which the researcher adopts both numerical and non-numerical data for purposes of meeting set objectives.

Mixed method research design was used as it had merits such a researcher having no control over the variables and only reporting what happened on the basis of the information and data gathered from participants (Creswell & Plano Clark 2007). Mixed research design was also found appropriate for the study because it involved collecting both quantitative and qualitative data in order to answer pertinent questions concerning the current status of subjects under study (Patton, 1990). The research design provided facts and suggestions on major connections between the variables (McMillan & Schumacher, 2010). A combination of quantitative and qualitative research strategies were employed in order to not only obtain numerical analysis and justification

but also provide a room for units of observations to give their attitudes, opinions, and expressions.

3.4 Target Population

The target population entailed all the households in Uranga Division, Siaya sub-county. According to 2009 census provisional results, the population of Uranga Division is 41,800 people with a total of 8340 households. However, the unit of analysis in this study was households. This formed the targeted population for the study.

3.5 Sample Size and Sampling

According to Gay (1999), the sample size was determined based on the following formula:

$$n = \frac{Z^2 * (p) * (1 - p)}{d^2}$$

Where,

n = the desired sample size (if the target population is greater than 10,000); which was to be determined in this study

z= the standard normal deviation at the required confidence level; which was taken as 1.96 for the 95% confidence level

p = the proportion in the target population estimated to have characteristics being measured; which was 0.5

d = the level of statistical significance set, which was taken as 5% for this study

A subsequent margin of error of just above +-2% at 95% confidence level is adequate for a social science study of this nature and allowed for a statistical significant cross location analysis. The

sample was proportionately divided within the locations on the basis of population. Random samples were drawn from the visited community.On the basis of above formula, the identified sample size was as follows:

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

$$384.16 \approx 385$$

Therefore, the study identified a total of 385 households to help in gathering data towards achieving the set objectives. The 385 households formed representative sample to help in gathering quantitative data.

Other than the 385 households, the study also identified 10 members of Uranga Division community to take part in the Focused Group Discussions (FGD). Additionally, the study also identified 3 stakeholders from the DFP. The reason for including the 10 households and 3 stakeholders from DFP was to assist in gathering qualitative data. Qualitative data was used in augmenting the quantitative data obtained from the 385 households. Table 3.1 that follows summarizes the samples of participants adopted in the study:

Table 3.1: Sample Sizes

	Sample	**Sampling Strategy**
Households	385	Simple random sampling method
Individuals for FGD	10	Purposive sampling method
Stakeholder within DFP	3	Purposive sampling method
Total	398	

Source: Author's Calculations

With respect to sampling strategy, simple random sampling technique was used to select the 385 respondents. This is a probabilistic sampling technique that gives every member of the target population an equal chance to form the representative sample.

In addition, purposive sampling was used to identify 10 participants from the local community to FGD. These participants were obtained from divisional headquarters that work in the department of agriculture and environment. These participants were considered very instrumental in providing qualitative information relating to the how the DFP has changed the social and economic lives of the community members. The study only focused on the village elders and those who have been there for more than 20 years to see the DFP.

The study also identified 3 DFP stakeholders courtesy of purposive sampling strategy to further assist in gathering information that would augment data from households. The management of Dominion farm was included in the study considering that they had a better understanding of the operations of the firm especially with respect to conversion of Yala swamp as a wetland in a bid to create more arable land, promote agriculture, and alleviate poverty levels.

3.6 Focus Group Discussion

In the present study, focus group discussion (FGD) was also adopted in order to help in obtaining more information from the 10 members of the community in respect to operations of Yala Swamp is concerned. A focus group discussion (FGD) was a good way to gather together people from similar backgrounds or experiences to discuss a specific topic of interest. The group of participants was guided by a moderator (or group facilitator) who introduced topics for discussion and helps the group to participate in a lively and natural discussion among them. The strength of FGD relied on allowing the participants to agree or disagree with each other so that it

provided an insight into how a group thinks about an issue, about the range of opinion and ideas, and the inconsistencies and variation that exists in a particular community in terms of beliefs and their experiences and practices. In this case, FGDs was used to explore the meanings of survey findings that cannot be explained statistically, the range of opinions/views on a topic of interest and to collect a wide variety of local terms. In bridging research and policy, FGD was considered useful in providing an insight into different opinions among different parties involved in the change process, thus enabling the process to be managed more smoothly. It is also a good method to employ prior to designing questionnaires.

3.7 Data Collection Instrument

Berg and Gall (2007) define research instruments as “tools for collecting data”. In a study, there are a number of research tools which a researcher can select depending on the nature of the study, the kind of data to be collected and the kind of population targeted (Orodho, 2004). This study used self-administered questionnaire to collect data from the field. The self-administered questionnaire developed contained close-ended questions with multiple choices. Questionnaire was adopted based on the fact that it was not only practical but large amounts of information were collected from a large number of people in a short period of time and in a relatively cost effective way. It is also important to note that questionnaire was adopted based on the fact that it was carried out by the researcher in conjunction with other research assistants with limited affect to its validity and reliability. The results of the questionnaires were quickly and easily quantified by either a researcher; hence, allowing for analysis to be more 'scientifically' and objectively than other forms of research. Owing to the fact that data was quantified, the study was able to conduct a comparison and also contrast it with other researchers for purposes of validating the findings.

The first part of the questionnaire assisted in gathering background information of the participants. The main aspects included in part one are age, gender, location, sub-location, village, marital status, educational status, economic activity, type of farming, and the employer. The second part focused on use of wetland as in the case of Yala Swamp in Uranga Division. In the third part, the questionnaire included questions relating to economic effects, social effects, and level of benefit sharing as relate to Yala Swamp. Various statements were developed in relation to the aforementioned aspects. Participants were asked to state the level of their agreement to the statements in a 5-point Likert-scale (1 represented strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree). A combination of short-structured and long-structure questions was included. In other words, there were close-ended and open-ended questions that assisted in gathering data and information towards meeting the study objectives.

A FGD schedule was also adopted in order to gather more useful information on socio-economic effects of converting Yala Swamp through the DFP. Local administrators within the Uranga Division, Siaya Sub-County were incorporated into the FGD to help in understanding how the DFP is changing the lives of the communities. The study also used an interview schedule to interview three stakeholders from Dominion Company just to gather data on socio-economic effects of the project. The questions contained in this interview schedule were open-ended and were aimed at establishing how the DFP is having impacts on the livelihoods of the locals. The use of FGD and interview scheduled allowed the study to gather opinions, views, and even expressions of emotions or frustrations (if any) concerning the project.

3.8 Reliability of Data Collection Instrument

Reliability of the data collection instruments was determined through Cronbach's alpha coefficient. Mugenda and Mugenda (2003) define reliability as a measure of the degree to which

a research instrument yields consistent results or data after repeated trial. For reliability, the study conducted a pilot study amongst 30 households in Uranga Division which were not part of the representative sample. Cronbach alpha coefficients were calculated and compared against the 0.7, which is recommended by Mugenda and Mugenda (2009). The study established a Cronbach's alpha of .891 as illustrated in the following **Table 3.2** from all the 40 items that were included within the general questionnaire (10 items for each aspects that were under investigation, that is, use of wetland, economic value, social value, and benefits sharing).

Table 3.2: Reliability Statistics

Cronbach's Alpha	No of Items
.891	40

According to George and Mallery (2003), an instrument that has more than .70 Cronbach's Alpha is considered to be very reliable given the high internal consistency. Therefore, the study established that indeed the self-administered questionnaire used in gathering data and information was very reliable with high internal consistency.

3.9 Validity of Data Collection Instrument

Validity is the degree to which results obtained from the analysis of the data actually represent the phenomena under study (Mugenda and Mugenda, 2003). In this study, the validity was taken to mean the extent to which the instruments covered the objectives. To determine the validity of the instruments, a pilot study was conducted in the same division since it is the one that is significantly affected by the Yala swamp wetland conversion or development under the DFP. The questionnaires were issued to the 30 households that formed the pilot study sample. The households that were chosen for pilot study were not included in the sample to be used in the study. Through the pilot study, the researcher was able to determine ambiguities in the items.

The items that failed to measure the variable intended were modified and others discarded. Expert advice was sought from the supervisors and other lecturers in the Department of Urban and Regional Planning, for modification and improvement of the questionnaires.

The questionnaire used in gathering data was found to be exhibiting strong convergent validity with concomitant measures. Based on the sample of 30 households who were not part of the study sample, the questionnaire score for the socio-economic effects was significantly and positively related to wetland use. From the sample of 30 households, there was a significant positive relationship between wetland usage and economic values (r = .043, p< 0.05), wetland usage and social values (r = .043, p< 0.05), and wetland usage and benefit sharing with the community (r = .043, p< 0.05). Expert advice sought from the supervisors and other lecturers in the Department of Urban and Regional Planning also indicated that the instrument adopted was very valid in terms of content. The FGD schedules used amongst the other households and stakeholders representing DFP were also reviewed based on expert advice from supervisors. On the basis of advice obtained from such experts, the study established that indeed the questionnaire, FGD, and interview schedules used as data collection instruments were valid.

3.10 Data Collection Procedure

Data collection procedures refer to the systematic steps that the researcher follows in the correct way to obtain data from the field. The researcher obtained a letter of permission from the director Board of Post Graduate Studies Maseno University before embarking on the actual work. Permission was also sought from the officer in charge of Uranga Division, chiefs, sub-chiefs, and village elders at a local Baraza. The researcher then made preliminary visits to Yala Swamp and its environs in Uranga Division. The visit was done for the purpose of establishing rapport with various households as well as the provincial administration officers including chiefs, sub-chiefs,

and village elders. The researcher clarified to people concerned other important ethical issues such as privacy and confidentiality of the information given to her, anonymity and respecting their right to withdraw from the study and treating them with dignity. It is on this basis that consent was sought from the participants.

The questionnaires were administered to the households. The researcher requested them to fill in the questionnaires. Participants were taken through the instructions on filling in the questionnaires. Questionnaires were designed such that it would require approximately 5 to 7 minutes to answer. In cases where the household heads were unable to read and write, the researcher interviewed them on the basis of questions contained in the questionnaire. All the responses given were then recorded by the researcher on the questionnaire. Once the data collection instrument was completed, participants were given opportunity to ask any relevant questions relating to the study. Data collection was done for a period of one month.

3.11 Data Analysis and Presentation

A combination of descriptive (mean and standard deviation) and inferential (Pearson correlation) statistics were used to analyse the data gathered. After data collection, the questionnaires were coded then data entered into the computer for analysis. The Statistical Package for Social Sciences (SPSS) version 24.0 was used to process and analyse data. To analyse the results for the three objectives, scores obtained from the 5-point Likert scale from the different variables were obtained. Every variable had 10 items. Since there were 10 items on a 5-point Likert scale and the averages of the items in independent variables were used during establishment of correlation.

Table 3.3: Quantitative Data Analysis Matrix

Objective	Independent variable	Dependent variable	Statistical test
To examine the economic changes brought by the project on the livelihoods of people of Uranga Division	Economic changes	Use of wetlands	• Descriptive (frequency, percentages,) • Pearson correlation
To assess the social changes brought by the project on interaction of people in Uranga Division	Social changes	Use of wetlands	• Descriptive (frequency, percentages) • Pearson correlation
To evaluate the level of benefit sharing to the community.	Benefit sharing to the community	Use of wetlands	• Descriptive (frequency, percentages) • Pearson correlation

Source: Author (2017)

Tables and charts were used in presenting the results of analysis. Data presentation in this case was to assist in providing meanings at a glance. In addition, data presentation was to make the entire report look presentable.

3.12 Ethical Considerations

According to Cohen, Manion and Morison (2007), as interviews are considered an intrusion into respondents' private lives with regard to time allotted and level of sensitivity of questions asked; a high standard of ethical considerations should be maintained. The researcher met prospective respondents to explain intentions of the study and assured the respondents that information collected from them was for the sole purpose of the current study. Participation in the survey was voluntary and informed consent was obtained from all the interviewees. The researcher also obtained the consent of related administration in Uranga Division. Privacy and confidentiality was highly ensured and response given was never accessed by anyone else but the researcher.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Overview

The study sought to assess socio-economic impact of Dominion farm in Uranga Division within Siaya County, Kenya. The specific objectives included to examine the economic changes brought by the project on the lives of people of Uranga Division, assess the social changes brought by the project on interaction of people in Uranga Division, and evaluate the level of benefit sharing to the community.This chapter has presented the findings on socio-economic effects of the Dominion Farm in Yala swam, Uranga Division, which is a converted or developed wetland. This chapter presents the findings of the study with respect to its specific objectives.

4.2 Analysis of Response Rate

The target population included all households in Uranga Division. However, a total of 385 households were identified to form the representative sample. The questionnaires were self-administered. The respondents were explained to the importance for the study and the use of obtained information. This ensured the highest response rate of 90.1% (347 out of the 385). According to Mugenda and Mugenda (2009), a response rate of 50% is considered adequate, 60% good, and above 70% rated very good. For the case of this study, a response rate of 90.1% was reported as illustrated in **Fig. 4.1.** Of the 385 households, 347 completed their questionnaire, which translated to 90.1% completed questionnaires. On the other hand, 28 of the households partially filled in their questionnaires resulting into 7.3% of the participants having their questionnaires partially filled. The remaining 10 households (2.6%) did not fill in their questionnaires (**Fig. 4.1**). Resulting response rate of 90.1% was considered very good and thus the researcher proceeded for data analysis of the 347 completed questionnaires.

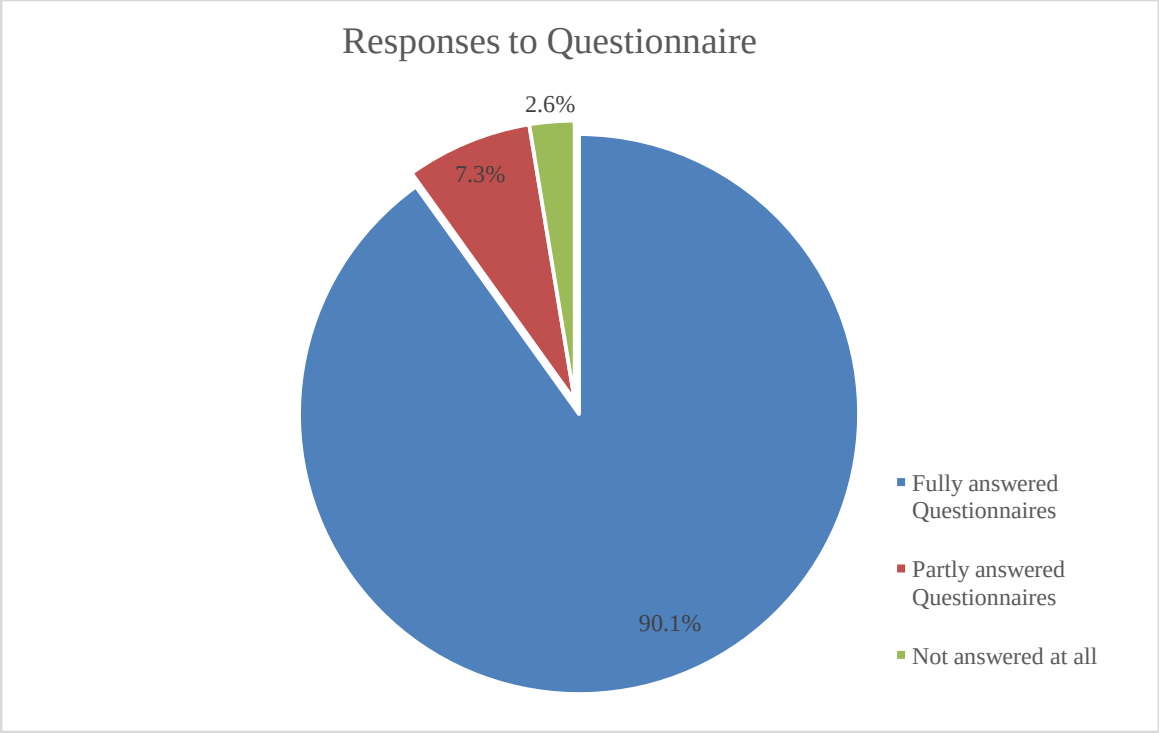

Figure 4.1: Response Rate

Source: Survey Research Data, 2017

The first step was to establish demographic composition of participants in order to establish whether it contained features of a population. A population as explained by McMillan and Schumacher (2010) is one with diverse demographic characteristics including age, gender, occupation, and even level of education amongst others. The main aspects include gender, age, marital status, religion, and education status.

Based on the responses obtained, 53.9% (187) of the household heads that took part in the study were females whereas the remaining 46.1% (160) of the households in the study were headed by males as illustrated in **Fig. 4.2**. The implication is that majority of households in Uranga Division are headed by women. On the other hand, 70% of the participants who took part in the FGD were males with the remaining 30% being females.

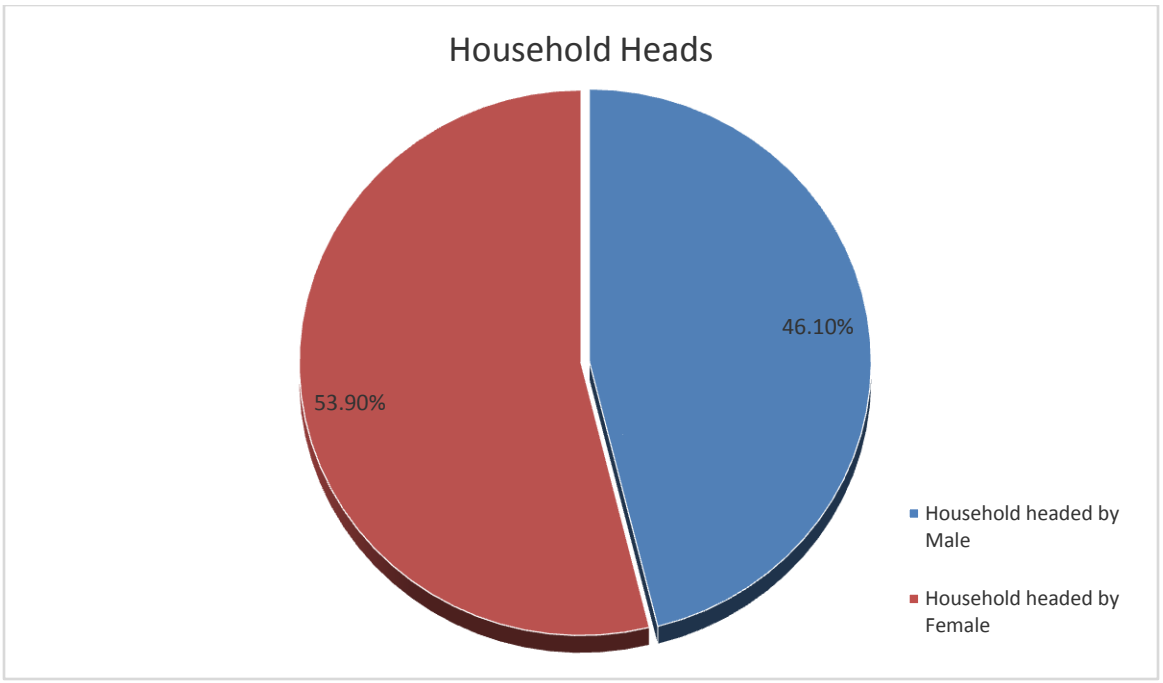

Figure 4.2: Household Heads
Source: Survey Research Data, 2017

In terms of age, 40.0% of the participants were between 31 and 40 years, 25.6% falling between 41 and 50 years, 18.9% between 21 and 30 years, 10.0% above 50 years, and only 5.6% being below 20 years as illustrated in **Fig. 4.3**. The implication here is that majority of heads of households are headed by individuals who are between ages 31 and 40 years followed by those between 41 and 50 years.

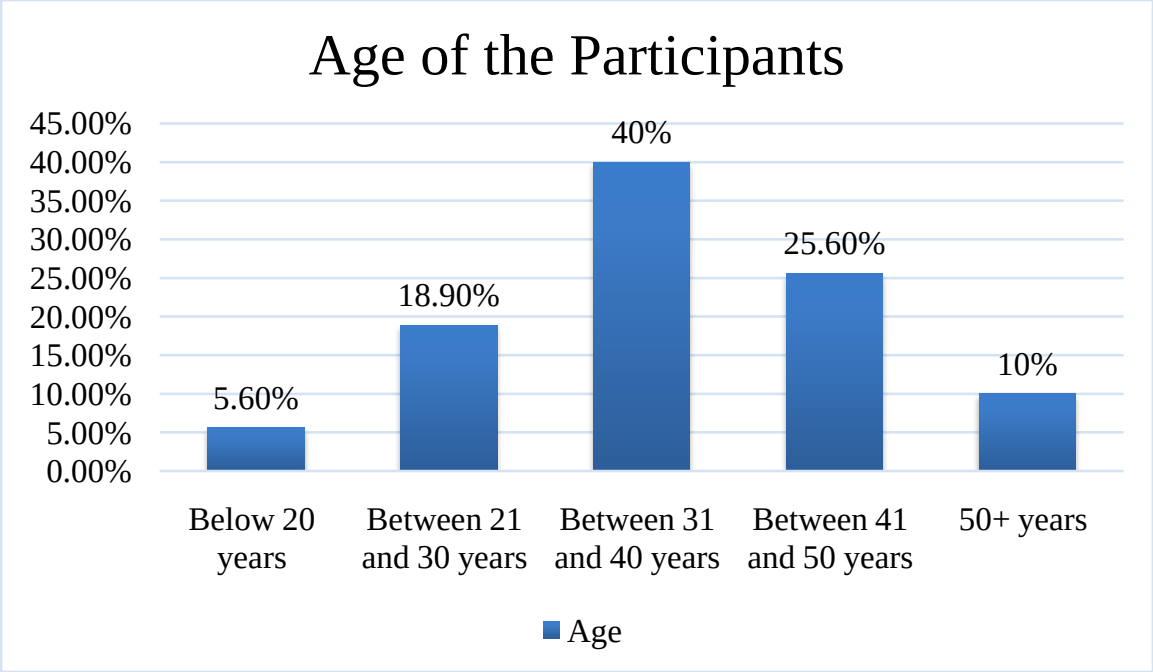

Figure 4.3: Age of the Participants
Source: Survey Research Data, 2017

The study was also interested in finding out the marital statuses of the household heads that took part in the study as units of observation. Responses obtained are illustrated in **Table 4.1.**

Table 4.1: Marital Status of the Respondents

Variables (N= 347)	**Categories**	**Frequency (%)**
Marital status	Single	31(8.9%)
	Married	175(50.4%)
	Divorced	10(2.9%)
	Widowed	131(37.8%)

Source: Survey Research Data, 2017

On the basis of responses, the study established that 91.2% of the house heads in Uranga Division could be assumed to have been involved in active family management.

The responses indicated that 95.8% of the participants that took part in the study were Christians, 3.6% were Muslims, and the remaining 0.6% did not go to church or mosque as illustrated in

Fig. 4.4.

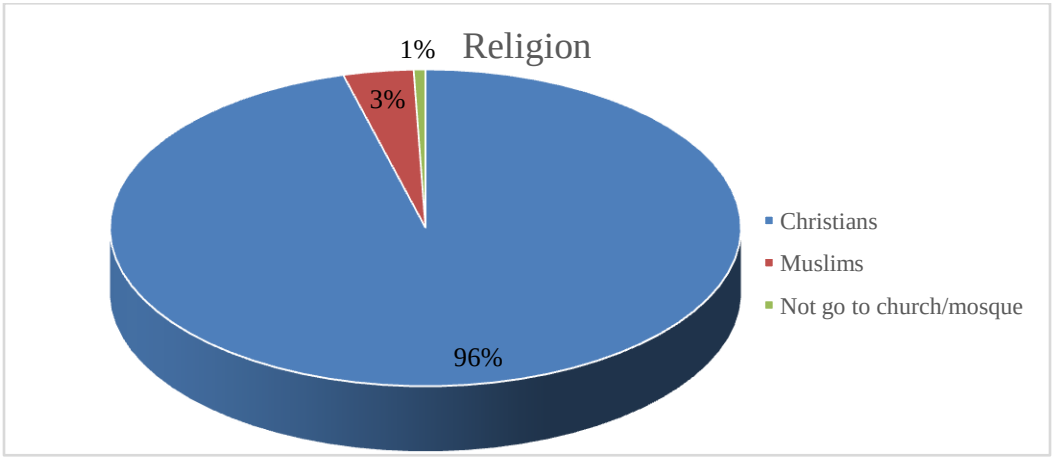

Figure 4.4: Religion of the Participants

Source: Survey Research Data, 2017

Responses in **Fig. 4.4** implied that since more than 99.4% of the household heads in the study attend either a church or a mosque, they believe in virtue of honesty as taught by the various doctrines. The results are illustrated in **Fig. 4.5**below**.**

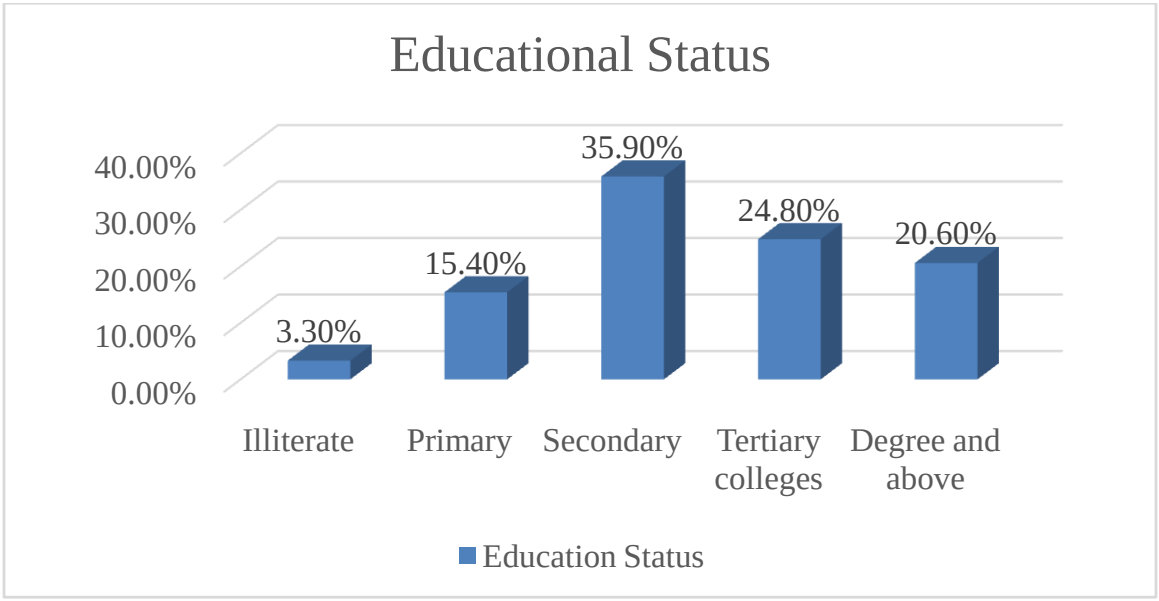

Figure 3.5: Educational Status of the Participants

Source: Survey Research Data, 2017

Of the 347 house heads, 35.9% had secondary educational level, 24.8% diploma, 20.6% degree and above, and 3.3% considered themselves illiterate.

4.3 Socio-Economic Effects of Dominion Farm, Yala Swamp

The first objective of the study sought to assess the economic changes brought by the project on interaction of people in Uranga Division, the second objective dealt with social changes while the third objective examined benefit sharing between DFP Stakeholders and Community. The study therefore adopted selected changes that were in line with Dominion firm practices. These included use of wetland within DFP in Yala Swamp. As a first step of achieving the objectives, preminary analysis on the use of wetlands within DFP in Yala Swamp was presented.

1.9.1 Use of Wetland within DFP in Yala Swamp

Use of wetland was taken to measure the dependent variable. Various statements were developed concerning wetland use while adopting the DFP in Yala swamp. The study aimed at establishing the extent to which the house heads who were the units of observations agreed to the statements relating to usage of wetland. The descriptive statistics of responses relating to the wetland use statements are illustrated in **Table 4.2.**

Table 4.2: Descriptive Statistics for Use of Wetland within DFP

Statement	1	2	3	4	5
Wetland is a good grazing field	12	28	57	165	85
	3%	8%	16%	48%	24%
It has provided grass for building and harvesting of papyrus reed for building mats	15	56	90	150	36
	4%	16%	26%	43%	10%
The current state of the swamp allows us to collect water for home usage	30	45	65	147	60
	9%	13%	19%	42%	17%
At its current state, we are now able to collect medicinal herbs	19	50	66	147	65
	5%	14%	19%	42%	19%
The swamp has been made in such a way that we can hunt for wild animals	9	38	70	134	96
	3%	11%	20%	39%	28%
There is accessibility of various areas where we collect wood for fuel as well as construction	20	36	77	115	99
	6%	10%	22%	33%	29%
Pottery making has been enabled in the current state of the swamp	22	41	69	109	106
	6%	12%	20%	31%	31%
Based on the Dominion farm projects, we are now able to do subsistence farming	24	42	61	123	97
	7%	12%	18%	35%	28%
There have been commercial farming going on within the swamp ever since the Dominion project started	19	36	69	123	100
	5%	10%	20%	35%	29%
Dominion farm project has created the condition of the swamp such that there has been fishing going on for a number of years	22	46	72	87	120
	6%	13%	21%	25%	35%

Source: Survey Research Data, 2017

According to the results in **Table 4.2**above, the study established that majority of the participants agreed with the various uses of wetland ever since the Dominion Company started operating in the Yala swam. The results established that on the wetland in Dominion has been useful in grazing, providing grass for building and papyrus reeds for making mats, collecting water for home usage, and collecting medicinal herbs. In addition, results indicate that Dominion farm is used for hunting wild animals, collecting wood for fuel as well as construction, pottery making, doing subsistent farming, doing commercial farming, and fishing. The interpretation of aforementioned results is that the arrival of Dominion Company and starting of the DFP in Yala swam has converted, developed, and transformed the wetland such that it is now rendered very useful to the locals in a number of ways. This is because courtesy of their responses it was

established that households in Uranga Division agreed that at its current state, there is a lot of activities going on in Yala swamp.

Qualitative data from the FGD also established that the current state of Yala swamp, that is, following interventions and transformations by the Dominion Company through its DFP, there are a lot of activities going on. The responses obtained from the 10 participants during the FGD are illustrated in **Table 4.3.**

Table 4.3: Responses from Interview on use of Yala Swamp

Activities mentioned	1	2	3	4	5	6	7	8	9	10
Grazing of their cows, goats, and sheep; farming for home use	X			X			X			
Faming and fishing		X	X						X	
Pottery making			X			X	X			X
Availability of various materials such as wood for fuel and constructions	X		X		X		X			X
Use of grass for making houses and papyrus for developing mats	X			X			X		X	
Hunting for wild animals as a form of economic activity and leisure		X			X			X		X
Gathering of the herbs for treating different diseases	X			X			X		X	
Doing forming for sale; in large scale		X			X		X			X

Source: Survey Research Data, 2017

On the other hand, the representative from Dominion Company that has been involved in the transformation, conversion, and developing of Yala swamp as a wetland noted that:

> *I have to admit that when we arrived at this place, the wetland was considered very useless by the locals. A few number of the locals we talked to registered their displeasure by the local authorities for not taking action to help them harness something from the wetland. (1st Representative from DFP)*

> *We have since transformed, converted, and developed this wetland. As it stands today, a number of activities are on-going. The locals can now effectively farm, fish, hunt, and get other materials such as wood for construction and fuel. (2nd Representative from DFP)*

> *We as a firm have also been able to engage in commercial farming from this wetland (3rd Representative from DFP)*

Data from quantitative research (households) and qualitative research (FGD and interviews) has confirmed that reclamation of wetland in Yala Swamp by the Dominion Company has resulted into putting the land to various uses. The current findings of this study can be compared to those of Nkhata et al. (2012), Adekola, Mitchell, and Grainger (2015), and Kumar et al. (2011). According to their findings, Nkhata et al. (2012) noted that with adequate developmental projects, wetlands may be turned into arable land where there is extensive agriculture.

On the other hand, Adekola, Mitchell, and Grainger (2015) confirmed that converted wetlands form a good source of various materials such as wood and reed, which can be the used for other purposes. According to Kumar et al. (2011), wetlands may be considered useless at first but with adequate development, they form the best fishing groups, provide opportunity for even tourist attraction, and other activities. In this study, it has been established that since the inception of DFP, Yala swamp has been put into very good use. From such findings, wetlands can be converted and developed in such a way that they become very useful to the locals.

1.9.2 Economic Effect of DFP in Yala Swamp

The first objective of the study was to establish economic effect of DFP in Yala swamp. A number of economic changes associated with conversion or development of wetlands were identified, and house heads, who were the units of observations, asked to state how much they

agreed to the information in a scale of 1 to 5. Responses obtained from the house heads that took part in the study are illustrated in **Table 4.4.**

Table 4.4: Descriptive Statistics on Economic Effect f DFP in Yala swamp

Statement	1	2	3	4	5
The Dominion Farm Project in Yala swamp has					
Resulted into increased production of foods which have assisted us in attaining food security	20 6%	20 6%	57 16%	123 35%	127 37%
Increased local income levels through the creation of employment	25 7%	46 13%	60 17%	96 28%	120 35%
Assisted in the reduction of poverty in the region through provision of employment	25 7%	57 16%	60 17%	140 40%	65 19%
Increased crop production for domestic consumption and for export	30 9%	39 11%	66 19%	147 42%	65 19%
Provided sustainable livelihoods for rural households	29 8%	40 12%	50 14%	132 38%	96 28%
Resulted into better agricultural outputs and maximize land productivity unlike before where we could do very little agricultural activities	36 10%	24 7%	77 22%	120 35%	90 26%
Increased crop production especially rice for commercial purposes, which have made the region to be considered amongst producers of rice	35 10%	37 11%	59 17%	106 31%	110 32%
Brought outside experts in healthcare, farming, equipment maintenance and the like to provide technical support, training and any other services not currently available in the country	35 10%	39 11%	60 17%	90 26%	123 35%
Assisted in community development activities through financial assistance to organized groups carrying out income generating activities	36 10%	19 5%	69 20%	100 29%	123 35%
Increased in foreign exchange earnings through export.	30 9%	40 12%	77 22%	90 26%	110 32%

Source: Survey Research Data, 2017

Majority of the participants agreed and strongly agreed with the statements relating to economic effects of DFP on the community. Based on the results, it has been established that the Dominion Farm in Yala swamp has become an important source of economic livelihood for the locals. The responses obtained indicate that the swamp has been converted to help in production of foods, increasing local income levels through the creation of employment, reduction of poverty in the region through provision of employment, and increasing crop production for domestic

consumption and for export. The swamp has also enhanced sustainable livelihoods for rural households, provided agricultural outputs and maximize land productivity unlike before where we could do very little agricultural activities for increased crop production, and changing of the livelihoods of the locals through bringing on board a number of experts in healthcare, farming, equipment maintenance and the like to provide technical support, training and any other services not currently available in the country.

In addition, the research asked participants in the FGD on whether DFP in Yala swamp had economically affected the livelihood of the households. Based on thematic analysis, **Table 4.5** summarise the responses obtained from the 10 participants during the FGD:

Table 4.5: Responses from FGD on Economic Effect of DFP in Yala

Activities mentioned	1	2	3	4	5	6	7	8	9	10
Employment; both skilled and unskilled persons getting employment in the farm	X	X								X
Increased production of foods; increased local income levels			X			X				
Reduction of poverty; increased crop production for domestic consumption				X			X		X	
Maximize land productivity; increased crop production especially rice for commercial purposes					X			X		
Sustainable livelihoods for rural households		X				X				
A good face to the world	X						X			X
Experts to provide technical support, training							X		X	
Community development activities through financial assistance										X

Source: Survey Research Data, 2017

Table 4.5 shows the response distribution of the economic effect of DFP in Yala Swamp based on the outcome of FGDs. It is clear that most of the anticipated expectations on the economic effect were positively reflecting its effect. This means that DFP has brought out positive impact on the economic livelihood of the residents of Dominion area.

The representatives from Dominion Farm were also asked about economic impacts of the firm's activities and he noted that:

> *I believe as a firm, we have really impacted on the locals from an economic aspect. There are numerous activities that we have done so far. I bet that the Yala swamp did not impact much on locals until we came. (1st Representative from DFP)*

> *Through the firm there has been increased employment; both skilled and unskilled persons getting employment in the farm. I would also like to state that the firm and its projects have resulted into increased production of foods for both subsistence and commercial, increased local income levels thereby helping in the reduction of poverty. (2nd Representative from DFP)*

> *We have also maximised the use of land, which was not done earlier on. Indeed, we have been able to achieve sustainable livelihoods for rural households. There is no doubt that there are numerous economic impacts, which I may not mention but can be seen. (3rd Representative from DFP)*

Comparing data from the households (quantitative), FGD, and interview (qualitative), the current study establishes that DFP activities in Yala swamp have resulted into a number of economic impacts across Uranga Division. Findings of this study corroborate those of Nkhata et al. (2009), Jogo and Hassan (2010), and Morardet et al. (2010). In their studies, Nkhata et al. (2009) noted that conversion of wetlands into arable lands result into a number of economic effects. They further identified aspects of employment, increased income levels, alleviation of poverty, and maximisation of the use of land. On their analyses, Jogo and Hassan (2010) further indicated that converting wetlands is likely to offer opportunity for extensive farming, which will yield more food products for subsistence and commercial purposes. Similarly, Morardet et al. (2010) established in their studies that converted wetlands are known for achieving sustainable livelihoods amongst the locals in addition to enhancing the development of different local

organisations. The interpretations and implications of the current study is that households in Uranga Division have economically benefited from the DFP in Yala swamp.

1.9.3 Social Effects of DFP in Yala Swamp

The second objective was to to assess the social changes brought by the project on interaction of people in Uranga Division. Social effects of the DFP in Yala swamp were also investigated through asking participants to state how much they agreed with the statements. **Table 4.6** summarises the results obtained from the respondents in respect to social impact of the DFP on the community.

Table 4.6: Descriptive Statistics on Social Impact of DFP in Yala swamp

Statement	1	2	3	4	5
The Dominion Farm Project in Yala swamp has					
Assisted in community development activities through training to organized groups carrying out IGA	20 6%	20 6%	57 16%	123 35%	127 37%
Provided important leisure facilities – canoeing, fishing, shell collecting, bird watching, swimming, snorkelling, hunting, and sailing	25 7%	46 13%	60 17%	96 28%	120 35%
Improved schools and healthcare facilities	25 7%	57 16%	60 17%	140 40%	65 19%
Improved various infrastructures such as roads and communication	30 9%	39 11%	66 19%	147 42%	65 19%
Assisted in building and equipping of laboratory of the nearby Ratuoro Health centre	29 8%	40 12%	50 14%	132 38%	96 28%
Collaborated with both governmental and NGOs to fight malaria and other water born disease	36 10%	24 7%	77 22%	120 35%	90 26%
Improved on the provision of water and sanitation	35 10%	37 11%	59 17%	106 31%	110 32%
Degraded of the wetlands	35 10%	39 11%	60 17%	90 26%	123 35%
Resulted into loss of land by the community members	36 10%	19 5%	69 20%	100 29%	123 35%
Increased resource use conflicts	30 9%	40 12%	77 22%	90 26%	110 32%

Source: Survey Research Data, 2017

Results contained in **Table 4.6** above show that the house heads agreed with the fact that DFP activities in Yala swamp has resulted into various social effects given that the mean of 4 (rounded off to the nearest whole number) was obtained for each statement. The interpretation is that participating households confirmed that on average they agreed with the social impacts brought about by DFP activities in Yala swamp within Uranga Division. Based on the responses, the study established that Dominion Firm since its entry into Yala swamp as assisted in community development activities through training to organized groups carrying out IGA, provided important leisure facilities – canoeing, fishing, shell collecting, bird watching, swimming, snorkelling, hunting, and sailing and improved a number of social aspects within the division. Unlike in the previous instance where the wetland prevented them from extensively engaging in the said activities, the conversion and organisation of the Yala swamp from a complete wetland to arable and useful land has enhanced such social activities. The study also sought to confirm the findings from the households through the FGDs by asking them whether the farm has had some social effects on the locals. Responses obtained from the FGDs are summarised in **Table 4.7.**

Table 4.7: Responses from FGD on Social Effects of DFP in Yala

Activities mentioned	1	2	3	4	5	6	7	8	9	10
Training of community development organisations involved in income generating activities	X		X							
Leisure activities and increased tourism		X		X	X					
Improved infrastructures such as schools, healthcare facilities, roads, and market places						X	X		X	
Collaborations with other organisations to promote the social well-being of the locals								X		X
Degradation of the wetland and its ecosystem					X		X		X	
Loss of land that was formerly owned by the community			X					X		X
Increased conflicts especially in the use of resources	X									X

Source: Survey Research Data, 2017

Information obtained from the FGD (**Table 4.7**) indicated that households in Uranga Division have experienced both positive and negative social effects of the DFP activities in Yala swamp. These social effects include improved infrastructure, leisure activities, and collaborations by other organisations, degradation of wetlands, loss of land, and conflicts in sharing resources.

When asked about the social effects of DFP activities in Yala swamp, the representatives from the Dominion Company explained that:

> *I believe that as an organisation we have significantly changed the social lives of the locals. Of course Yala swamp has been in existence for a long time. However, no one had seen that reclaiming or converting the land from wetland to arable land would not only benefit locals economically but also socially. (1st Representative from DFP)*

> *We have done a lot when it comes to the idea of improving infrastructures such as schools, roads, health facilities, and even market centres. For instance, we were involved in the building and equipping of laboratory of the nearby Ratuoro Haealth centre. (2nd Representative from DFP)*

> *Currently, Dominion Farm attracts a lot of tourists, who bring lots of businesses to the community members. I also strongly believe that we have been able to bring on board a number of organisations but governmental and non-governmental to further improve on the lives of the locals. We have also assisted in research also. (3rd Representative from DFP)*

Both quantitative results from households and the qualitative results from the FGDs confirm that there are social impacts associated with DFP activities in Yala swamp. The current findings are consistent with those of Nkhata et al. (2008), Jogo (2011), McCartney et al. (2011), and Li et al. (2014). Nkhata et al. (2008) in their study indicated that reclaiming or converting wetlands results into improve infrastructural developments. According to them, involved stakeholders in the reclamation are usually involved in enhancing infrastructural developments.

Similarly, Jogo (2011) established in their studies that reclaimed wetlands are known for bringing on board other organisations that would further impact on the lives of locals. In addition, McCartney et al. (2011) established in their studies that wetlands that are reclaimed may provide cleaner water and better sanitation than their natural states. It was also established by Li et al. (2014) that other than positive social impacts, reclaimed wetlands usually have negative impacts including loss of land that was formerly owned by the community, degradation of the wetland, and the increased conflicts in usage of resources. The implication of these findings in relation to the present study is that households in Uranga Division have continued to experience various social effects courtesy of the DFP activities in Yala swamp. Such social impacts are both positive and negative.

1.9.4 Benefit Sharing between DFP Stakeholders and Community

The third objective of this study was to evaluate the level of benefit sharing to the community. Various statements were developed relating to benefit sharing and participants asked to state to what level they agreed with the same.

Table 4.8: Descriptive Statistics on Benefit sharing aspects

Statement	1	2	3	4	5
There is adequate sharing of benefits between the company and all stakeholders	35 10%	40 12%	60 17%	102 29%	110 32%
Ownership and management of Yala swamp changed suddenly with no more free access for the local community	26 7%	46 13%	61 18%	107 31%	107 31%
We have never understood the whole transition process of change of governance of the wetland	19 5%	22 6%	60 17%	120 35%	126 36%
Dominion Company has been re-investing savings and loans in other income generating activities including small businesses	30 9%	41 12%	66 19%	101 29%	109 31%
Dominion Company has initiated industrial activities that they fear may degrade the wetland without local participation	29 8%	26 7%	65 19%	123 35%	104 30%
There is inadequate all-inclusive participatory approaches in the management of the Yala swamp	35 10%	42 12%	70 20%	105 30%	95 27%
There is lack of forum and a feedback mechanism between key stakeholders	35 10%	39 11%	60 17%	90 26%	123 35%
Community continues to feel that despite them being primary stakeholders of the swamp, they are not adequately empowered to participate in decision-making regarding the wetland	36 10%	19 5%	69 20%	100 29%	123 35%
Participation in the activities of the Dominion Company is discriminatory	35 10%	37 11%	59 17%	106 31%	110 32%
The firm has been able to adequately ensure that all stakeholders benefit from its activities	30 9%	40 12%	77 22%	90 26%	110 32%

Source: Survey Research Data, 2017

Results indicated in **Table 4.8** show that majority of the participants agreed and strongly agreed with the statements relating to benefit sharing. Based on the findings, the study has established that there is adequate sharing of benefits amongst the stakeholders. Responses from the participants indicated that there has been enhanced ownership and management in addition to the transition and governance within the farm. Similarly, the study has established that Dominion Company has been re-investing savings and loans in other income generating activities including small businesses. The other aspect of benefits so far shared amongst the stakeholders is the initiation of industrial activities while improving on the participation of community members. However, there are issues associated with the operations of Dominion farm as indicated by the

participants. The findings indicate that other than lack of forum and a feedback mechanism between key stakeholders the community continues to feel that despite them being primary stakeholders of the swamp, they are not adequately empowered to participate in decision-making regarding the wetland. Moreover, the findings indicate that participation is discriminatory. The implication is that since the statements were confirmed by the households, there are issues with benefit sharing amongst all stakeholders despite strides made by the company. The participants in the GFGD were also asked to explain whether they understood the concept of benefit sharing especially in respect to projects such as the reclamation or development of wetlands as in the case with DFP in Yala swamp. **Table 4.9**summarises the results:

Table 4.9: Responses from FGD on Benefit Sharing

Meaning of Benefit Sharing	1	2	3	4	5	6	7	8	9	10
Bring all stakeholders together in all decisions	X									
Ensuring that every stakeholder have a piece of the 'cake'		X								
Transforming the entire society in which a company operates			X							
Enhanced social accountability on the part of the company				X						
Having adequate social arrangements in which every stakeholder is involved					X					
Encouraging consultations and participation especially of the affect communities						X				
Good and effective channel for questions and feedbacks from the community							X			
All-inclusive participation especially in deciding on what to do with the benefits derived								X		
Company involved in making primary stakeholders benefit more									X	
Transition process being explained to the involved community										X

Source: Survey Research Data, 2017

Courtesy of information in **Table 4.9**, the study established that benefit sharing as per the perceptions of participants during the FDG is bringing on board every stakeholder and ensuring

that the benefits are shared. These perceptions are consistent with the explanations provided by Dias and Belcher (2015) and Adekola, Mitchell, and Grainger (2015) affirming that benefit sharing is social responsibility in which an organisation tapping on natural resources from a community should engage all the involved stakeholders in addition to ensuring that benefits derived trickle down to the locals.

The study then asked the participants on whether there is benefit sharing concept in the DFP activities of Yala swamp within Uranga Division. Unfortunately, only 6 of the 10 participants (60%, which is considered good as per the submissions of Mugenda & Mugenda, 2009) were able to respond to the question.

Participant 1 stated that:

> *From my own perspective, I believe the problem stated when the Dominion Company came. At first, the wetland is a trustee land under the custodian of the local authorities on behalf of the government of Kenya. The swamp including the satellite lakes has been used on a free open access by the community for exploitation of its goods and services. However, upon the coming of Dominion Company, things changed and we have never understood the whole transition process (Participant 1)*

On the other hand, Participant 3 responded by stating that:

> *Considering the time I have lived in this division, Dominion Company has been able to adequately ensure that all stakeholders benefit from its activities. Personally, I have benefitted a lot from the activities of the company (Participant 3)*

It was observed by Participant 4 that:

> *Personally, I feel disappointed with the company to some extent even though they have managed to change the standards of our livelihoods. My displeasure is that Dominion Company has initiated industrial activities that they fear may degrade the wetland without local participation (Participant 4)*

According to Participant 6:

> *In my own conviction, there is inadequate all-inclusive participatory approach in the management of the Yala swamp. I would also like to note that despite the benefits, there is lack of forum and a feedback mechanism between key stakeholders (Participant 6)*

Participant 7 on the other hand indicated that:

> *The community as a whole, I included, continues to feel that despite them being primary stakeholders of the swamp, they are not adequately empowered to participate in decision-making regarding the wetland (Participant 7)*

While expressing his displeasure with the company, Participant 10 indicated that *"participation in the activities of the Dominion Company is discriminatory*". The implication of these expressions and views is that the level of social responsibility within Dominion Company is still wanting. Such findings corroborate the assertions of Li et al. (2014) noted that when a firm is unable to make the communities and all stakeholders feel part of its activities, its social accountability is likely to be questioned even when it is transforming the lives of the locals. This could be the reason behind the increased wrangles that have been witnessed within Dominion Company especially with respect to its activities in Yala swamp, Uranga Division.

The study asked the Dominion Company's representatives about aspects of benefit sharing and the wrangles that have been witnessed in the recent past. Their responses are that:

> *Looking at what we have done, I believe the company has been at the forefront in ensuring that every stakeholder is involved in its activities. The firm has been able to adequately ensure that all stakeholders benefit from its activities. (1st Representative from DFP)*

> *I believe that the wrangles so far witnessed are merely due to political interferences with our activities and not necessary occasioned by the perceived lack of enhancing participation amongst all the stakeholders. (3rd Representative from DFP)*

Data from the households and information from interviewees confirmed that benefit sharing especially in scenarios where a company is involved in extraction or usage of natural resources is very essential. In addition, the findings indicate that there are various aspects relating to benefit sharing. Current findings are consistent with those of Li et al. (2014) who established in their study that benefit sharing especially in usage of specific natural resources from wetlands is about social responsibility where all stakeholders are involved. Similarly, Nkhata et al. (2012) in their study established that firms involved in tapping on natural resources along wetlands need ensure that all stakeholders benefit from its activities. In their studies, Chomba and Nkhata (2016) noted that companies reclaiming or developing wetlands should continue to re-investing savings and loans in other income generating activities including small businesses within the community. Nonetheless, Adekola, Mitchell, and Grainger (2015) noted that there are aspects that would make a community discontented with the operations of a community tapping on resources of a wetland. Some of the aspects identified in this study include lack of forum and a feedback mechanism between key stakeholders, discriminatory participation, and initiating projects without consultations.

The interpretations of current findings is that there are mixed reactions on benefit sharing aspects in the Yala swamp considering the activities of DFP. Whereas some households in Uranga Division believe that there has been extensive benefit sharing, some households believe that the concept has been contravened. A number of households as indicated in the results confirmed the presence of enhanced benefits shared across the communities with others expressing their displeasure at how participation is discriminatory and that majority of stakeholders are not involved. On their part, the Dominion Company believes that they have adhered to the principles of benefit sharing while tapping on the natural resources in Yala swamp. The implication is that

there are mixed reactions about actualisation of the principles of benefit sharing, which would warrant for more research on the same.

In order to establish the socio-economic effects of the DFP activities in Yala swamp on the households within Uranga Division, Pearson Correlation was used to establish the relationships. The correlation analysis is illustrated in **Table 4.10**:

Table 4.10: Correlations between the Variables

		Use of wetland	Economic Impact	Social Impact	Benefit sharing
Use of wetland	Pearson Correlation	1	.713*	.607*	.611*
	Sig.		.004	.001	.007
Economic Impact	Pearson Correlation	.713*	1	.087	.193*
	Sig.	.004		.299	.021
Social Impact	Pearson Correlation	.607*	.039	1	.154
	Sig.	.001	.299		.065
Benefit sharing	Pearson Correlation	.611*	.193*	.154	1
	Sig.	.007	.021	.065	

*. Correlation is significant at the 0.05 level

Source: Survey Research Data, 2017

According to the results in **Table 4.10**, the study established statistically significant positive correlations amongst the variables. The Pearson Correlation between use of wetlands and economic impact is .713, which is statistically significant given that *p*-value of 0.004 < 0.05. The study has also established a positive correlation between use of wetland and social impact (r = .607), which is also statistically significant since *p*-value of 0.001 < 0.05. Lastly, the study has also confirmed a statistically significant positive relationship between use of wetland and benefit sharing with the community (r = .611, *p*-value of 0.007 < 0.05). Therefore, at 5% significance level, the study established that there are statistically significant positive correlations between the

dependent and independent variables. The interpretation in this case is that households in Uranga Division have continued to experience significant socio-economic effects from the activities of DFP in Yala swamp.

Current findings are consistent to those of Cai et al. (2012), which confirmed that reclaiming of wetlands in most cases bring about enhanced socio-economic effects. Similarly, the studies by Hao et al. (2012) and Meshesha et al. (2014) confirmed that reclaiming or development of wetlands is about transformation for usage that would benefit locals to a larger extent. Such transformations are known to have significant socio-economic effects as indicated by Liu, Li, and Zhang (2012). Studies by Zhang Shao, and Shao (2014) and Kindu et al. (2016) also indicated that there is a positive relationship between reclaimed wetland and economic impact. Researchers in these studies confirmed that with adequate development or reclamation of wetlands, the locals are likely to benefit economically. In another study, Cai et al. (2013) establish a positive relationship between social effects and use of wetlands. The researcher noted that when put to good use; wetlands are likely to change the lives of locals significantly. Therefore, the current study in conjunction with previous studies confirmed that DFP activities in Yala swamp have had significant socio-economic effects on the households living in Uranga Division.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This chapter discusses the summary of the study, conclusions drawn from the findings and recommendations. The recommendations of the study include the recommendations for management policy, recommendations for managerial practices, and areas for further research.

5.2 Summary of the Findings

The first objective of the study was to examining the economic changes brought by the project on the lives of people of Uranga Division.The study has established that DFP in Yala swamp has improved the social and economic statuses of the stakeholders. The results have also established that DFP activities in Yala swamp have increased assistance from expertise on technical support, training and any other services not currently available in the country, financed of community development organisations, and increased foreign exchange earnings through export from the rice. Such findings have also been confirmed by qualitative results from the interviews with locals and representative from Dominion Company. In addition, the findings indicate positive correlation between economic effects and the DFP in Yala swamp implying that households have experienced economics benefits.

In the second objective, the study assessed social changes brought by the project on interaction of people in Uranga Division. Findings confirmed that activities of DFP in Yala swamp have assisted community development activities through training to organized groups carrying out IGA, provided important leisure facilities – canoeing, fishing, shell collecting, bird watching, swimming, snorkelling, hunting, and sailing, improved schools and healthcare facilities,

improved various infrastructures such as roads and communication, assisted in building and equipping of laboratory of the nearby Ratuoro Haealth centre, collaborated with both governmental and NGOs to fight malaria and other water born disease, improved on the provision of water and sanitation, degraded of the wetlands, resulted into loss of land by the community members, and increased resource use conflicts. The study established that there was a statistically significant strong positive correlation between use of wetland and social impact in Yala swamp, Uranga Division.

The third objective of the study was to evaluate the level of benefit sharing to the community. The current findings indicated that there is adequate sharing of benefits measured on the basis of what the created benefits between the company and all stakeholders. The specific aspects included change of ownership and management of Yala swamp with no more free access for the local community, the community has never understood the whole transition process of change of governance of the wetland, Dominion Company has been re-investing savings and loans in other income generating activities including small businesses, Dominion Company has initiated industrial activities that they fear may degrade the wetland without local participation, there is inadequate all-inclusive participatory approaches in the management of the Yala swamp, and that there is lack of forum and a feedback mechanism between key stakeholders.

5.3 Conclusion

On the first objective which sought to examine the economic changes brought by the project on the lives of people of Uranga Division, Siaya County, the study concludes that a strong significant relationship exists between DFP in Yala and economic effects. Wetlands can then be converted or developed for purposes of enhancing economic values of the community. According to the findings, economic effects had the greatest correlation with DFP project, which

implies that the conversion or development of Yala swamp was intended to improve the economic welfare of community members.

In the second objective, which focused on assessing the social changes brought by the project on interaction of people in Uranga Division, Siaya County, the study concludes that there is a statistically significant correlation between DFP in Yala and social factors. The implication is that wetland conversion can be used to enhance social statuses of community members and affected stakeholders. Considering its correlation coefficient, social effect had the smallest of the three variables. In this respect, the study concludes that even though it has resulted into enhancement of social status, it was not the primary objective for conversion of Yala swamp.

With respect to the third objective, the study aimed at evaluating the level of benefit sharing to the community in Uranga Division, Siaya County. The study concludes level of benefit sharing within the DFP in Yala Swamp is very high. In other words, all stakeholders enjoy the benefits associated with conversion of Yala swamp. Considering that it has the second largest correlation, the study concludes that the intentions of DFP management were to bring on board different benefits to be shared amongst stakeholders.

5.4 Recommendation

Based on the foregoing findings and conclusions the study therefore recommends the following. Given that economic effects had the greatest correlation with the DFP in Yala Swamp, a lot of emphasis should be placed on coming up with activities that would change economic statuses of community members in Uranga Division, Siaya County. The study recommends that management of DFP in conjunction with other players should aim at identifying and

implementing other activities that would promote the economic growth, development, and welfare of community in Uranga Division, Siaya County.

In addition, emphasis should also be put on benefit sharing amongst all the stakeholders within Uranga Division, Siaya County, which was found to be having the second greatest correlation to the DFP in Yala Swamp. There is a need for the DFP management and other involved stakeholders to come up with formulas and ways of ensuring that benefits obtained or derived from the conversion of Yala swamp is shared in a way that every stakeholder feels satisfied. With a good benefit sharing formula, the communities are likely to provide a helping hand in further development of the wetland.

Owing to the fact that social effects had the least correlation coefficient with DFP in Yala Swamp, the study recommends that emphasis should be put in coming up with activities to enhance social statuses of the community members in Uranga Division, Siaya County. Even though putting a lot of resources on improving social statuses of the community members is likely to yields the least, it is important to note that such aspects are likely to further improve on the living standards of the stakeholders.

5.5 Suggestions for Further Research

From the study findings, conclusions, and recommendations and in considerations of the limitations of this study, the following topics or areas are suggested for further research:

i) Establishing challenges preventing conversion of wetlands into arable lands

ii) Impacts of the intervening or moderating factors on socio-economic effects of wetland conversion

iii) There is a need for more studies that take up longitudinal study other than cross-sectional study, which will help in establishing the impacts and not only the socio-economic effects of wetland conversion.

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APPENDICES

Appendix 1: Consent Form

Identification of Investigators & Purpose of Study: You are being asked to participate in a research study conducted by Zacehus Okech Okoth from Maseno University. The purpose of this study is to assess the socio-economic impacts of Dominion farm in Uranga Division within Siaya County, Kenya. This study will contribute to the researcher's completion Masters of Education.

Research Procedures: This study consists of a survey that will be administered to household heads in Uranga Division, Siaya Sub-County. You will be asked to provide answers to a series of questions related to

Time Required: Participation in this study will require 10 to 20 minutes of your time but you will have up-to 1 week submitting the duly completed questionnaire.

Risks: *The investigator does not perceive more than minimal risks from your involvement in this study (that is, no risks beyond the risks associated with everyday life).*

Benefits: Potential benefits from participation in this study include understanding whether.

Confidentiality: The results of this research will be presented at to the supervisor in form of an examination that is confidential and private. While individual responses are obtained and recorded anonymously and kept in the strictest confidence, aggregate data will be presented representing averages or generalizations about the responses as a whole. No identifiable information will be collected from the participant and no identifiable responses will be presented in the final form of this study. All data will be stored in a secure location accessible only to the researcher. At the end of the study, all records will be destroyed.

Participation & Withdrawal: Your participation is entirely voluntary. You are free to choose not to participate. Should you choose to participate, you can withdraw at any time without consequences of any kind. However, once your responses have been submitted and anonymously recorded you will not be able to withdraw from the study.

Questions about the Study: If you have questions or concerns during the time of your participation in this study, or after its completion or you would like to receive a copy of the final aggregate results of this study, please contact:

Zacheus Okoth Okech

Email address:

Phone number: +254-708944444

Appendix 2: Questionnaire for the Households

Dear Participant:

I am Zacheus Okoth Okecha student at Maseno University currently studying Masters ofArts in Project Planning and Management. As a requirement, I am expected to conduct a research on topics related to urban planning and management. I am conducting a study on socio-economic impacts of Dominion Farm in Uranga Division within Siaya County, Kenya. I humbly request that you assist me with gathering data and information that would enable me to complete this study. The information you provide will be treated as private and confidential.

SECTION A: DEMOGRAPHIC DATA

1. What is your gender?
    a. Male
    b. Female

2. What is your age?
    a. Below 20 years
    b. Between 21 and 30 years
    c. Between 31 and 40 years
    d. Between 41 and 50 years
    e. Above 50 years

3. What is your marital status?
    a. Single
    b. Married
    c. Widow
    d. Divorced

4. What is your religion?
    a. Christian
    b. Muslim
    c. Others (kindly specify)……..

5. What is your highest education level?
    a. Never attended school (Illiterate)
    b. Primary
    c. Secondary
    d. Tertiary
    e. Degree and above

SECTION B: USES OF YALA SWAMP

In a scale of 1 to 5 (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree) state how much you agree with the following statements.

Statement	1	2	3	4	5
1. Wetland is a good grazing field	1	2	3	4	5
2. It has provided grass for building and harvesting of papyrus reed for building mats	1	2	3	4	5
3. The current state of the swamp allows us to collect water for home usage	1	2	3	4	5
4. At its current state, we are now able to collect medicinal herbs	1	2	3	4	5
5. The swamp has been made in such a way that we can hunt for wild animals	1	2	3	4	5
6. There is accessibility of various areas where we collect wood for fuel as well as construction	1	2	3	4	5
7. Pottery making has been enabled in the current state of the swamp	1	2	3	4	5
8. Based on the Dominion farm projects, we are now able to do subsistence farming	1	2	3	4	5
9. There have been commercial farming going on within the swamp ever since the Dominion project started	1	2	3	4	5
10. Dominion farm project has created the condition of the swamp such that there has been fishing going on for a number of years	1	2	3	4	5

SECTION C: SOCIO-ECONOMIC EFFECTS OF YALA SWAMP

In a scale of 1 to 5 (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree) state how much you agree with the following statements.

Economic Effects

Statement	1	2	3	4	5
The Dominion Farm Project in Yala swamp has					
1. Resulted into increased production of foods which have assisted us in attaining food security	1	2	3	4	5
2. Increased local income levels through the creation of employment	1	2	3	4	5
3. Assisted in the reduction of poverty in the region through provision of employment	1	2	3	4	5
4. Increased crop production for domestic consumption and for export	1	2	3	4	5
5. Provided sustainable livelihoods for rural households	1	2	3	4	5
6. Resulted into better agricultural outputs and maximize land productivity unlike before where we could do very little agricultural activities	1	2	3	4	5
7. Increased crop production especially rice for commercial purposes, which have made the region to be considered amongst producers of rice	1	2	3	4	5
8. Brought outside experts in healthcare, farming, equipment maintenance and the like to provide technical support, training and any other services not currently available in the country	1	2	3	4	5
9. Assisted in community development activities through financial assistance to organized groups carrying out income generating activities	1	2	3	4	5
10. Increased in foreign exchange earnings through export.	1	2	3	4	5

Social Effects

Statement	1	2	3	4	5
Dominion Farm in Yala swamp has:					
1. Assisted in community development activities through training to organized groups carrying out IGA	1	2	3	4	5
2. Provided important leisure facilities – canoeing, fishing, shell collecting, bird watching, swimming, snorkelling, hunting, and sailing	1	2	3	4	5
3. Improved schools and healthcare facilities	1	2	3	4	5
4. Improved various infrastructures such as roads and communication	1	2	3	4	5
5. Assisted in building and equipping of laboratory of the nearby Ratuoro Health centre	1	2	3	4	5
6. Collaborated with both governmental and NGOs to fight malaria and other water born disease	1	2	3	4	5
7. Improved on the provision of water and sanitation	1	2	3	4	5
8. Degraded of the wetlands	1	2	3	4	5
9. Resulted into loss of land by the community members	1	2	3	4	5
10. Increased resource use conflicts	1	2	3	4	5

Benefit Sharing

	1	2	3	4	5
1. There is adequate sharing of benefits between the company and all stakeholders	1	2	3	4	5
2. Ownership and management of Yala swamp changed suddenly with no more free access for the local community	1	2	3	4	5
3. We have never understood the whole transition process of change of governance of the wetland	1	2	3	4	5
4. Dominion Company has been re-investing savings and loans in other income generating activities including small businesses	1	2	3	4	5
5. Dominion Company has initiated industrial activities that they fear may degrade the wetland without local participation	1	2	3	4	5
6. There is inadequate all-inclusive participatory approaches in the management of the Yala swamp	1	2	3	4	5
7. There is lack of forum and a feedback mechanism between key stakeholders	1	2	3	4	5
8. Community continues to feel that despite them being primary stakeholders of the swamp, they are not adequately empowered to participate in decision-making regarding the wetland	1	2	3	4	5
9. Participation in the activities of the Dominion Company is discriminatory	1	2	3	4	5
10. The firm has been able to adequately ensure that all stakeholders benefit from its activities	1	2	3	4	5

Appendix 3: Interview Schedule

Questions for FGD

1. Following interventions and transformations by the Dominion Company through its DFP, what are some of the activities that the locals have experienced within Yala swamp?
2. Do you think the DFP in Yala swamp has had economically impacted on the livelihood of the households? Kindly explain
3. Do you believe that the DFP in Yala swamp had some social impacts on the locals? Kindly explain
4. Have you ever hear of the concept benefit sharing in various community-based projects?
5. If yes, what do you understand by the concept benefit sharing in various projects?
6. Can you confirm that the DFP in Yala swamp incorporates the principle of benefit sharing? Kindly explain
7. Any general comment

Interview for the Dominion Farm (K) Ltd

1. As the representative from Dominion Farm (K) Ltd, has the transformation, conversion, and developing of Yala swamp as a wetland resulted into various activities? Kindly explain
2. Considering your activities, can you state confidently that there have been significant economic impacts on the locals? Kindly explain
3. What do you think are the social impacts of DFP activities in Yala swamp on the various households?
4. From your understanding of benefit sharing, can you argue in favour of or against the principle as portrayed in your activities?
5. Any general comment