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AN ASSESSMENT OF DRIVERS AND MANAGEMENT PRACTISES OF LAND-BASED CONFLICTSIN TANA RIVER DELTA, KENYA.

BY
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DECLARATION

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This thesis is my original work and has not been presented for a degree in any other University.

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LIST OF ABBREVIATIONS

AEZ	Agro-ecological zone
CoK	Constitution of Kenya 2010
EIA	Environment Impact Assessment
EMCA	Environmental Management and Coordination Act
FGD	Focus Group Discussion
GIS	Geographic Information System
GoK	Government of Kenya
Ha	Hectares
IMTC	Inter-Ministerial Technical Committee
IBA	Important Bird Area
KBA	Kenya Biodiversity Area
Km	Kilometers
Km2	Kilometers squared
KNBS	Kenya National Bureau of Statistics
KWS	Kenya Wildlife Service
LAPSSET	Lamu Port-Southern Sudan-Ethiopia Transport Corridor
LUP	Land Use Plan
LUP/SEA	Land Use Plan/Strategic Environment Assessment
MDGs	Millennium Development Goals
Mt.	Mount
NEMA	National Environment Management Authority
NLP	National Land Policy

NSP	National Spatial Plan
OPM	Office of Prime Minister
PSR	Pressure State Response
RAMSAR	City in Iran, where convention on wetlands was agreed in1971
R. Tana	River Tana
SSI	Semi-structured Interview
TARDA	Tana and Athi River Development Authority
USIP	United states Institute of Peace

ABSTRACT

Natural resource based conflict continue to be experienced in Tana River County despite many attempts aimed at resolving and managing of the conflicts. This study aimed at assessing the land-based conflicts within the Tana river delta ecosystem, located within Tana River County, through a) evaluating the drivers to the conflicts b) examining the existing strategies in managing and resolution of the conflicts and c) ranking the existing strategies of managing and resolving the conflicts according to the local community perspectives. A descriptive methodology was adopted for the study and data was collected through researcher administered questionnaires, participant observations, key informants' interviews, and focus group discussions. In total, 120 questionnaires were completed fully and were used for data analysis. In addition, correlation analyses were employed. The study results showed that land tenure (83.3%, mean 1.6), climate change (83%, mean 1.8) and politics (64%, mean 2.0) are the key drivers that resulted to the conflict. Evaluations of the existing strategies revealed an amalgamation of strategies exist in the resolutionof the conflict. However, community peace meeting 83%, joint prayer meeting (82%) and arrestingof conflict instigators (64%) were ranked the community members as best strategies of resolving the conflict. The study recommends establishment of proper land use planning system, implementation of sustainable land system management and addressing encroachment into community grazing land.

CHAPTER ONE : INTRODUCTION

1.1 Study background

Global society faces many complex inter-linked challenges: inter alia, increased urbanization, overexploitation of natural resources, loss of biodiversity, climate change, and increased natural calamities (Palmer *et al*., 2009). Most of these challenges occur due to inadequate access to land and land-related resources. Land-related challenges involve competition for the land resources, incompatible land-use practices existing in one ecosystem, loss of biological diversity in an ecosystem, and degradation of the environment.

Land is a crucial resource as it comprises ownership of settlement areas, farming land, grazing areas and other important livelihood aspects. Human beings use land resources to satisfy their immediate needs and enhance their day to day livelihoods. Land-based livelihoods remain a major economic activity in most third world countries. Agriculture and land use are essentially two sides of the same coin because of the significance of land in agricultural production.

Significantly, due to the scarcity of land as a natural resource, most often, many communities face the challenge of land competition from time to time. Competition over land and its resources has been observed as the nexus between land and conflict globally (Bruce, 2013). Land conflict can occur due to ethnic, religious, gender, generation or social-class indifference regarding land allocation. Additionally, land conflict can also occur due to other factors such as increased urbanization and major project development where land ownership has been generational (Bruce, 2013). Conflicts emanate when two or more groups believe their land interests are incompatible. Land conflict is not an entirely negative phenomenon, its non-violent forms act as an essential component for social change and development. Non-violent conflict is an inevitable component of human interaction. It can be resolved when the conflicting parties trust their governing structures,

society, and institutions to resolve the conflicting interests (Kalabamu, 2019). However, land-related conflicts become unfavorable when the societal mechanisms and institutions for conflict resolution fail to harmonize the conflicting parties, leading to violence. Globally, trends in land conflict are not a new phenomenon. Currently, India is experiencing land conflict and disputes across 45% of its districts (Worsdell & Shrivastava, 2020). The most significant conflicts are the Northeast India border disputes that involve the Assam–Mizoram, Assam–Arunachal Pradesh, Assam–Nagaland and Assam–Meghalaya states (Das, 2021). The Assam–Mizoram conflict has experience violence since 1980 with skirmishes occurring from time to time. In 2021, an escalation involved the shooting of six police officers and left over 80 individuals injured (Das, 2021). The Assam-Nagaland dispute that can trace from 1963, its recent major event was in 2014 where 17 people were killed and 10,000 forced into relief camps (Misra, 2014).

In Kenya, land based conflicts have increased to deadly levels in the Delta in recent past. This has led to loss of lives, migration to other areas and closure of institutions such as schools and health institutions. Conflicts pitying the pastoralists (Orma) and the farmers (Pokomo) have been on the rise with the formers seeking grassland for their livestock and the later keen on developing and protecting their crop land.

1.2 Statement of the problem

Tana River delta is one of the six Ramsar sites in Kenya having attained that status in 2012 and second most important deltaic ecosystem in the entire Eastern Africa. The Tana Delta is located in lower parts Tana River County as the River Tana empties to the Indian Ocean and covers an approximate 130,000 ha area.

According to the Kenya National Bureau of statistics, the delta has a population of 96,664 people which comprises the Orma, Pokomo, Wardei and other minority tribes each with varying livelihoods. During the dry and drought season, the flooded grassland in the delta, acts as refuge to more than 300,000 units of livestock (GoK, 2009a).

Population surge coupled by competition for available scarce resources has escalated conflicts occurrence in the Delta due to encroachment into the fragile delta ecosystem as all parties wants to achieve control. Lack of a mutual agreement between the communities on land allocation and use has also been observed to be the key most drivers to the frequent recurrence of conflicts in the region (Hanshi, 2017).

These conflicts, escalated to the worst peak ever recorded in August 2012, where over 52 herders were killed by the farming communities in an early morning retaliatory attacks. The intensity and frequency of these conflicts is likely to increase due to effects of climate change and development of mega infrastructural projects such as Lamu Port –South Sudan –Ethiopia Transport corridor (LAPPSET). Inconsistent sustained presence of government security agencies has also been observed to a driving factor (Kipkemoi, 2018).

The government and other relevant stakeholders have employed several conflict resolution strategies. However, the local communities always deem the strategies as non-mutual, thus resulting in conflict recurrence due to dissatisfaction (Rutten, 2013). Similarly, several studies have been conducted on the factors influencing conflict or strategies to resolve conflict in the Tana delta as independent topics. However, the existing paucity of the knowledge of how the drivers of conflict interrelate with the existing conflict management practices emerges as a significant concern that needs to be evaluated. Therefore, there is a need to identify and develop a comprehensive mechanism that will aim to amicably solve the recurrent conflicts in the Tana Delta and harmoniously enhance the sustainable use of the ecosystem resource.

1.3 Research Objectives

1.3.1 General Objective

The main objective of this study was to assess the drivers and management of land-based conflicts in the Tana River Delta for improved conflict management in the area and other parts of the country with similar challenges.

The specific objectives were to:

a) Evaluate the drivers of land-based conflicts in the Tana Delta

b) Examine the existing approaches of resolving land-based conflicts in the Tana Delta

c) Evaluate the approaches in solving land conflict in the Tana Delta

1.3.2 Research Questions

a) What are the drivers that fuel land-based conflicts in the delta?

b) What are the existing approaches of resolving land conflicts in the delta?

c) How are the approaches evaluated in terms of solving the conflict in the delta?

1.4 Justification of the study

This research sought to focus special attention on the issue of land-based conflicts in Tana delta; with the aim of understanding the drivers that fuel the conflicts and the conflict resolution mechanisms that currently exist with the aim of establishing the best strategies of solving the land based conflict.

Tenets of sustainable management and conservation of land and land based resources are greatly anchored in the Constitution of Kenya 2010.The government, at both level, are mandated to enhance equity and equality in the management, conservation, and land use for the benefit of all.

Effective land resources management will lead to a prosperous nation hence a realization of the government's agenda. Sustainable development Goals could not be realized until land resource management is made to be effective and equal to all cadres of citizen in country.

This study significantly will be of key importance to the County as well as the central Government in that it will advise on appropriate mechanisms of resolving land -based conflicts hence leading to sustainability in Tana Delta and Kenya in general.

1.5 Limitation of the Study

The study was carried out specifically in the Tana Delta Sub-county, Tana River County because of the prevalence of the violence in the sub-county-although violence has also occurred in other sub-counties within the County. The study was limited to land-based conflicts although other natural resources such as water and mineral deposits might also cause or exacerbate the conflict in the region. Other limitations might include: Time limitation, Covid-19 pandemic, financial constraints and security reasons.

CHAPTER TWO : LITERATURE REVIEW

2.1 Introduction

Land is a treasured natural economic resource that is valued as an asset and a livelihood source among individuals and communities worldwide. It has also been strongly attached to community identity, history and culture of a particular community (Olajos, 2018). Whilst it is an appreciating valuable asset,it is also one of the resources with an increasing scarcity rate due to population pressure and therefore, individuals and communities readily mobilize around land issues and can easily spike aconflict. These conflicting issues if not addressed timely, most of the time become violent and canalso be latent over prolonged years (De Jong et al., 2020). However, conflicts do not occur singularly but as a result of a lengthy occurrence of political sidelining in terms of development, communal discrimination, and inequalities, economic marginalization, resource competition, and a misinformed general view thata peaceful resolve may not be a feasible approach for alternate occurrence (EU-UN, n.d).

Disputes arising from land issues have been seen to increase especially in the ASALs among pastoral communities, this is so as their livelihoods is based primarily on livestock keeping and rely on natural grazing for continuity of their herds. They move around to access the scarce and sparsely distributed natural resources for their livestock and often need to maintain a synergistic relationship with other land users such as farmers (International Fund for Agricultural Development [IFAD], 2020). If this relationship breaks, mostly due to competition for progressively less accessible and available resources eventually conflict emerges (Food and Agriculture Organization of the United Nations [FAO], n.d). These conflicts, many a time arise between farmers and pastoralists, however, it can also ensue within inter-pastoralist communities, or involve other players such as fishermen (United Nations Office for West Africa and the Sahel [UNOWAS],

2018). It is often accompanied by gross socio-economic and ecological negative effects. Conflict resolve and addressing conflict dynamics in both conflict and post-conflict situations is vital for any sustainable development, peace and stability among communities or region (Wehrmann, 2017).

2.2 Typology of land based conflicts

Land-based conflicts are primarily frequent in nearly all societies globally. In an ideal setting, established institutions with outlined resolve processes normally try to end such conflicts or sometimes transform them into a process that minimizes their ability to culminate into violence. However, in a community setting that is characterized by resource allocation inequality, rampant insecurity, and dysfunctional judiciary and arbitration system, such grievances may be heightening through utter neglect or predatory policies that are discriminatory (Bruce, 2013). UN-HABITAT (2012) additionally discussed that, land and conflict inter-relation often changes over time. Land-basedconflict may co-evolve with peace-making efforts and may sometimes even lead to evolution of new grievances after a peace pact. Land based conflict can appear in several forms such as boundary conflicts, competition conflicts or resources access associated conflicts.

2.2.1 Boundary conflicts

Disagreement on where land boundaries end or begin between individual plots, community owned land or administrative unit and another. This is rampant especially in areas where demarcation signs or physical boundary markers might have been altered or destroyed in the course of the conflict or overgrown over a period of time. This is one of the most existing type of land based conflicts primarily within individual and community levels (Lavi, 2015). Boundary conflict can also exist between countries inform of territorial conflict such as the Kashmir conflict between Pakistan and India, the Gaza strip conflict between Israel and Pakistan, the Kpéaba conflict between Ivory Coast and Guinea, and the Abyei Conflict between Sudan and South Sudan

(Padonou, 2016; Jansen, 2018; Elkahlout, 2018).

2.2.2 Land and Property conflict

Land and property conflict ensues where there is a competing claim over a piece or pieces of land between the government and native communities. Land in this case is seen as their cultural and traditional heritage. Land grabbing by elites or land invasion by the poor inform of squatters may also lead to land and property conflict (EU-UN, n.d). Furthermore, such disputes may also arise from unfavorable policies and legislations such as land reform policies or registration *"titling"*, nationalization, collectivization or privatization. Such disputes are particularly aggravated where land policies are poorly conceived, politically contentious or implemented in a faulty, corrupt or incomplete manner. Existing disputes may alsobe aggravated and new ones sparked by conflict (FAO, n.d).

2.2.3 Access and Use conflict

Access and use conflict may occur between groups or parties regarding overlapping uses of land-based resources. This type of conflict may be associated with access to water resources, minerals, timber, grazing land or transit rights. This in turn may fuel an existing conflict if not resolved amicably. It is one of the most observed type of land based conflicts among inter community groups (IFAD, 2020).

2.2.4 Inheritance Conflicts

Disagreements over the allocation of rights to land after the death of its recognized owner may be exacerbated in settings where polygamy is common or rules regarding inheritance derive from overlapping customary, religious and/or statutory law (EU-UN, n.d)

2.3 Drivers to land-based conflicts

Conflict in pastoral areas is mostly as results of several interrelated and interdependent factors (FAO, n.d). Primarily, these conflicts are driven by competition for natural resources such as, land

and water for farming and livestock keeping, they also occur due to political and socio-economic involvement. Mostly, they involve pastoralists and farmers with the main issue usually are allocation and management of these natural resources (UNOWAS, 2018).

There is a wider scope on causes of land based conflicts, mostly they occur during acquisition of land such as through grabbing, dispute and conflict inheritance between long-term neighbors and privatization by private developers who encroach into communal land (Wehrmann, 2017).

2.3.1 Population pressure

The tremendous increase in the global population is taking a strain on the available land resources. This progressive growth in population coupled by large herds of livestock as practiced by the pastoralist in the ASALs, have increased pressure on the already scarce land availability thereby creating a conflicting competition between other land users such as farmers in these regions (Mwesigye & Matsumoto, 2016). Such conflicts have been observed in the sub-Saharan region as the population pressure weakens social cohesion through tough competition for the scarce resource generally impacting negatively on land allocation and use, which in turn, can propagate into conflicts (Mwesigye & Matsumoto, 2016). Additionally, Zieba et al. (2017) puts it that, population growth and natural resources imbalance in Sahel region of African has been expressed as perilous and requires an inclusive jurisdiction for continuity of its sustainability.

Pastoralists rarely own land privately or on joint basis, rather, they traditionally depend on intercommunity agreement with the local neighboring communities for access to pasture and water as a shared resource (UNOWAS, 2018). Without good governance of these resources coupled by a steady increase in population pressure, competition between farmers and the pastoralist intensifies which progressively can culminate into a conflict. The pastoralists' potential to adapt to these challenges has been faltered by rights limitations to access natural resources, security instability, and poor government participation or engagement (UNOWAS, 2018).

Globally, there is a rapid in competition for land resources due to increase in population. The projected world populace by 2050 is anticipated to outstretch to around 10 billion (Sonter *et al*., 2015). Increased global population will mean strenuous impacts on land as an important resource. Dallimer et al. (2018) asserts that, African's landscape is plenty with combination of resources ranging from desserts, farm lands, mountains, coastal low lands and areas of freshwater. The land resources can contributein the attainment of the Millennium Development Goal (MDGs) as they provide vast opportunitiesfor both internal and external investors. Land plays an integral part in the economic sustainabilityfor most individuals and families in Kenya.

Mwesigye and Matsumoto (2016) conducted a research with the intention of clearly understanding the effects that population pressure has on land related conflicts. Householdand community data were used in correlation to parcel level in rural Uganda and results elicited that there was increased instances of land conflict cases among pastoral communities and communities with ethnic diversity. Furthermore, there was an increased probability of more land disputes in the districts characterized by a surging population growth-rate (Mwesigye & Matsumoto, 2016). The most common cause of the land dispute was inheritance. The study recommended strengthening of land rights so as to offer guidelines when solving land related conflicts in both formal and informal institutions. By following these recommendations, the proper formulation and implementation of land policies is vital in ensuringa substantial reduction in the number land conflicts reported (Mwesigye & Matsumoto, 2016).

The population in Tana River Delta is estimated at 87,201 and it is growing at the rate of 3.62%, which is far above the national average (2.9%). The rising population continues to exert pressure on the available resources, particularly land, pasture and water (Kenya National Bureau of Statistics [KNBS], 2019).

2.3.2 Land Tenure

Tenure insecurity spikes fear of eviction, loss of land and livelihood among many communities, this can spur a highly violent conflict between involved parties mostly due the perception that a peaceful resolve may not be a viable solution in this matter (Chingbu *et al*., 2019; Froese & Schilling, 2019). Most people are carried with the neocolonial myth that the winner of conflict takes it all; these conflicts have also been associated with potentially powerful political mobilization factor as witnessed in Ethiopia 1974 revolution (Bruce & Boudreaux, 2013). Insecurity of tenure has been largely identified as an endogenous determinant of land-based conflicts in rural settings especially among pastoral communities (FAO, n.d).

In Aziz and Onyema (2013), withdrawal and management of land tenure rights was observed to be associated with high intensity conflict in Nigeria involving small scale peasant farmers, land trustees, land tenants and landlords. Standardization of property titling and reinforcement of local institutions involved in alternative dispute resolution mechanisms and formation of an inclusive, transparent tenure system were recommended strategies for resolve of these types of conflicts (Aziz & Onyema, 2013)

2.3.2.1 Status of tenure and ownership in land in Tana Delta

Tana Delta has an area of 16,013.4 Km^2. It is the largest sub county in Tana River County with sixWards namely, Kipini West, Garsen North, Kipini East, Garsen Central, Garsen South and GarsenWest. Tana Delta has a wet land of approximately 1,300km^2 under serious threat from a range ofdevelopment projects (KNBS, 2019; Ramsar, 2012; Mbuvi *et al*., 2020). Due to its rich and important wetland ecosystem, the Delta has been namedas one of the six Ramsar sites in Kenya (Ramsar, 2012).

The 76km coastal strip is also in the sub county attracting more investors to scramble for the beach fronts. The sub county has also several settlement schemes, huge developments e.g TARDA, MAT International, Galana Kulalu project, Coastal aquaculture, Salt firms, Ranches and differentprivate farms (Okoko, 2022; Mbuvi *et al*., 2020).

2.3.2.2 Settlement Schemes in the Sub-county

The sub-county has three (3) settlement schemes in Kipini and one adjudication section in Ngao of Tarasaa Division. The three settlement schemes and the adjudication section managed to settle around 3183 populations. Witu 1 settlement scheme is approximately 7,461.95 Ha, with a settled a population of 988 people both indigenous communities of Tana River and other communities. Itis in this scheme that the grazing corridors like Chakamba (1514.4 Ha), pockets of forest (109.5 Ha) and swampy areas have been clearly demarcated for grazing purpose but the farmingcommunities have encroached on the areas (Mwamlavya *et al*., 2021; KNBS, 2019).

Witu 11 (Mchelelo) settlement schemes of approximately 1,981.25 acres settled a total of 317 people. The land was bought from Nairobi ranch (Kipini Conservancy) in Kipini by Government of Kenya to settle communities that had been evicted from Tana River primate reserve in Mnazini and Wenje area. The beneficiaries of this scheme got six (6) acres of farm Land and ¼ acre plot for settlement each. 90% of beneficiaries were the indigenous community of Tana River and also the evictees. Since Kenya Wildlife Service (KWS) did not take up cooperate social responsibilities of establishing amenities such as schools, health facilities and other infrastructure as promised when the community were being resettled, the communities have since relocated to their original land in Mchelelo (Kipini Conservancy, n.d; Mwamlavya *et al*., 2021).

Kipini settlement scheme of approximately 6,415 Acres benefited 1283 people each getting 5 Acres of land. The scheme has a mixture of different communities in Kenya, majority of who are the people who settled initially in Mpeketoni and spilled over to Tana River. The scheme had a case in court after the communities filed a case against the government citing their dissatisfactions on allocation done (KNBS, 2019; Parker, 2020). The general complaint was that majority were not allocated their farm land which they had established instead they were given a different area.

However, the ruling was in favor of the government and the allocations stood as earlier planned (Parker, 2020).

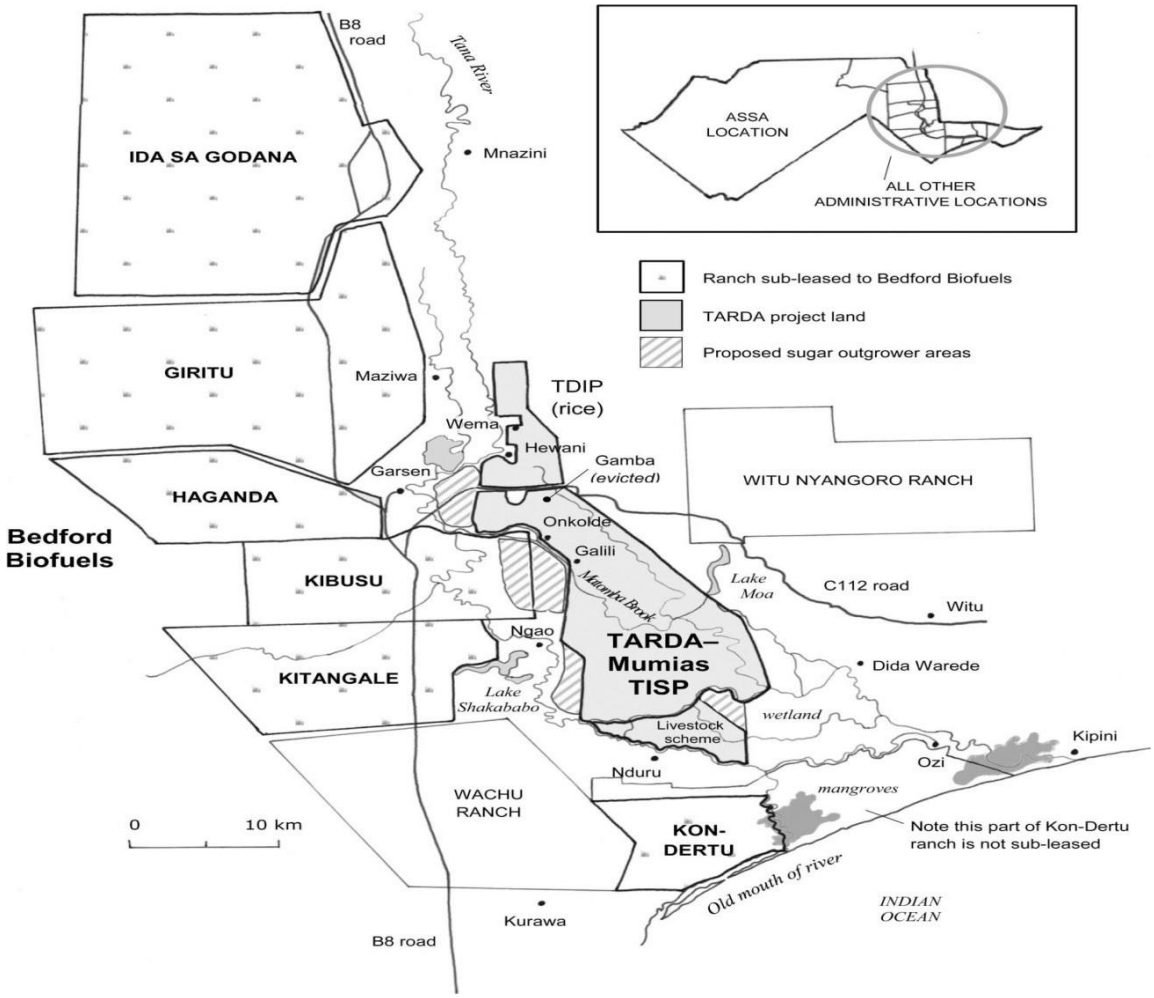
Ngao-A adjudication section is in Garsen south Ward. The area surveyed was on the west part of the River, Ngao town. Adjudication was done according to the size of the farm each family had (Jembe Kwa Jembe). A total of 600 plots were surveyed five (5) are public utility plots and 595 individual farms. The titles are in Mpeketoni registry after it was suspension of issuance.

2.3.1.1 Ranches in the Sub County

The sub county has seven Ranches owned by local communities namely, Ida-Sa- Godana, Giritu, Haganda, Kibusu, Kitangale, Wachu Oda and Kone Dertu. The Ranches has a total area of 200,595 Ha, mostly established between the year 1960s to 1980s, as Agricultural Directed companies (ADC). Most of the Ranches were issued with lease of 45 years and some with letter of Allotment letters. The extensions of the lease were extended in 2009 for some ranches (Kenya Private Developers Association [KPDA], 2013).

The Ranches are currently having lined up investors to lease their land since some ranches did not have any development projects expect Ida-Sa-Godana with some livestock, Sheeps, goats and some operational machines and infrastructures in good conditions. Two Ranches Ida-Sa- Godana and Wachu Oda have been invaded by squatters, mostly affected was Wachu Oda with highest number of invaders currently in the Ranch from Kilifi County and other part of Kenya (KPDA, 2013). Some group of people calling themselves “Tana Hurara Farmers CBO” havebeen inviting invaders and allocating them land through village elders with concept of the chief ofWachu Oda Location. The CBO has been writing to Lands office and National Land commission(NLC) for deregistration of the Ranch title and land allocated to be given to the squatters (KPDA, 2013; Tana River CIDP, 2018). The figure below shows ranches in the study area.

Figure 2.1 ***Ranches within Tana Delta Sub-County map***



(Source; Department of lands and physical planning, County Government of Tana River, 2015)

2.3.2 Overgrazing

Overgrazing has been blamed on not only severe prolonged drought, but also dwindling grazing areas both within and outside pastoralist regions because of population pressure, sedentarisation of settlements, and more primarily due to large livestock herds kept by the pastoral communities which leads to degradation. This leads to encroachment to greener non degraded lands which in turn causes competition from the neighboring communities which can result into a conflict (Boles *et al*., 2019). Tellenet al. (2016) in their study observed that respondents reported to agree that there was competition over land. Pastoralists claimed that farmers encroach on grazing land and

rechanneled water fromthe natural sources to their farms for crop. On the other side, farmers claimed pastoralists from time to time drive their large herds directly into water sources thereby, making the water non fit for human consumption. Disputes were experienced when livestock from the pastoralist invaded and destroy crops in the farms and farmers acted by chemical spraying of the vegetation surrounding the farms hence poisoning the livestock when the grazed in the sprayed area, this in turn culminates into violent conflicts as each party sees it as a retaliation approach (Tellen*et al*., 2016)

Tana River Delta has traditionally been used as a dry season grazing area based on traditional pastoral economy. As a result, pastoralists coming from as far as Wajir, Mandera and Somaliland migrate to the Delta during the dry season. Therefore, Tana River Delta has been an important lifeline for the pastoral economy in the region. The importance of Tana River Delta has even been more evident as a result of increased recurrence of severe drought (Tana River CIDP, 2018). During the last decade, the Delta has served as a year round grazing area making it impossible for the pasture to regenerate leading to overgrazing. Overgrazing is threatening to disrupt the livelihood system of the pastoralists as well as the ecosystem of the delta. Intensive grazing in the delta is also rapidly altering the ecosystem leading to loss of biodiversity resources. Therefore, in order to safeguard the livelihoods of the pastoralists as well as conserve the biodiversity resources in the delta, overgrazing must be addressed through structured grazing management regime (Tana River CIDP, 2018).

2.3.3 Mega-developmental projects

Infrastructure development is essential for economic growth through accessibility, provision and availability of resources and often promotes living standards of the surrounding residents through facilitation of employment, healthcare, and education. However, remote population as well as

indigenous communities where these developments occur, bear negative influences of these developmental projects that are essential for national growth, but in the long run affect the surrounding communities' sustenance and standard of living negative to their anticipation of a better outcome (Economic Commission for Latin America and the Caribbean [ECLAC], 2018).

They thus develop negative perception that the government always sides with corporations and private developers than the local communities benefits, potentially resulting to increased possibilities for social disputes to ensue (ECLAC, 2018).

Nyanjom (2014) also observes that, lack of government consultation with the host ASAL communities over mega development projects such as the grandiose LAPSSET project is likely to exacerbating further marginalization of these communities as these projects may shelve priorities of these communities. Marginalization has been identified as one of cause of conflicts in ASAL regions (EU-UN, n.d).

Tana River Delta natural resources are under potential increased pressure from planned agricultural expansion initiated by both government and the private sector. These agricultural projects have fundamentally changed the ecosystem of the delta through clearance of the existing vegetation, environmental pollution and rise in water demand to sustain the projects (KPDA, 2013). These projects are being implemented in the absence of a comprehensive plan that justifies natural resources management. In addition, these irrigation projects seek to tap low flow water from the river in the face of declining river discharge. Therefore, the proposed open canal irrigation projectsare likely to make the matter worse. Because of declining low flow, sea water intrusion is on the increase altering ecosystems of the delta (KPDA, 2013).

2.3.3.1 TARDA/Tana Delta Irrigation Project

The project was started in 1984 with 25,875 HA, L.R number 28086/280261 located in Garsen central ward and Garsen North ward. The project lies on the left bank of the river from Sailoni in

the north where the intake is located. The goal of TDIP was primarily to enhance food security, create employment and generate income for the local communities from sale of produce in local and export market (Tana and Athi Rivers Development Authority [TARDA], n.d). Since inception the project was divided into three (3) phases: Phase 1=4,400 Ha, Phase 2=3,850 Ha, and Phase 3= 4,250 Ha. TDIP was able to put into use half of phase one parcel of land 2000hHA which shows only 10% of total land allocated. Currently 2000 Ha of landhave been prepared for irrigation. The main challenge of this project was the river changing its course hence no water at the intake. Over 20 villages fall within TARDA land, but the communityhas taken TARDA to court 1994 case not concluded yet (TARDA, n.d).

2.3.3.2 ADC/Galana Kulalu Food Security Project

Galana/Kulalu Food Security Project is targeting to irrigate 1 million acres (57 % land in Tana Delta). The boundary to the east is bordering Wachu and Kitangale and to the west is 5km from Kone after Laga. ADC has leased the land to some investors among them Tembo Agro Oils 100,000 acres located 7kms west of Malindi-Garsen road (KIPPRA, 2021). The taskforce visited the area to know the boundary between the ranch and community land and corridors set aside for pastoral community to access the River Galana. The management promised a joint team of Kenya surveyors, ADC surveyors and Tana county surveyors to undertake joint demarcation of the area (KIPPRA, 2021).

2.3.3.3 MAT International

This is a private company with 24,433 Ha in Tana Delta (Mwina area) bordering TARDA to the North and East, and 30,000HA in witu, Lamu County to grow sugar cane. The international company was allocated the said land in 2007 as shown by letter of allotment. Since allocation the company has not done any development in the area. The community has been opposing the manner in which the land was allocated to MAT International (Neville, 2015).

2.3.3.4 Coast Aquaculture Chara Area

Coast Aquaculture owned by George Papalio is a private company which was allocated land in 1992-1993 to do prone farming. The company has two parcels of land, one leased from Kone-Dertu Ranch 5000HA, LR NO 17601/2, but in the agreement signed lawyers it was a sale agreement at two million six hundred thousand (2.6M). The directors of the Ranch signed the agreement after they were promised a fish pond of 1km2 will be constructed for them

Cattle dip and crush would be built for them as a form of CSR. All land rates Kone-Dertu owed government and county council of Tana River will be paid for them Construction of Dams and piped water from River to the Ranch offices.

The second parcel of land around was allocated to Coast aquaculture LR NO 17600 by the Government in 1992-1993, on southern part of Chara- Ozi roads, from Nduru village, kiboko and kalota total of seven (7) villages Nduru, Marafa, Chamwanamuma, Kiboko fall within coast aquaculture. The community farms on the southern part of the Chara Ozi road have all been affected by the company. Currently no activity is conducted on the ground.

2.3.3.5 Kipini Conservancy/Nairobi Ranch

The conservancy is found in Kipini area with 22,000HA of Land. The ranch was purchased by Sherman (known as Swaleh Nguru family) in 1979 to develop cattle ranching interest. However severe problem with livestock disease, banditry and invasion of the land by squatters made cattle operation difficult. The family also sold some of the land back to government in 1980s to settle communities (those evicted from Mchelelo). The family was then looking at alternative use for the ranch and realized best way was to conserve the area. The Ranch was registered in 2004 as Kipini Wildlife and Botanical conservancy (KWBC), following the signing of management agreement

between Nairobi Ranching Ltd and KWBCT. The area was gazette as forest in 2010 and was put under management of Kenya forest service (KFS) pursuant section 26(1) of forest Act 2005.

2.3.4 Politics

Politics play an important role in mediation and occurrence of land conflicts due to communalization of land identity among many pastoral and other communities in ASALs. A political clout and strong standing coupled with incitements can easily propagate a violence confliction (Odhiambo, 2015). Seter et al. (2018) in their analysis, argues that, there exist a complex nature in land based conflicts that may not be shrunken to a mere relationship of provocation- reaction basis such as competition for scarce resource and violence. They further observed that climate change such as prolonged drought was a determinant for conflicts. However, resource scarcity was not a key influence as it did not correlate with the differences in conflict intensity of the analyzed regions. Political processes were identified as the key contributor to the different conflict intensity and magnitude (Seter *et al*., 2018).

According to Levien (2013), unclear land/ property rights result from the overlapping of legislations. This in turn results in deadly conflicts. In the Sub- Saharan region, there is a history of land dispossession that results in various types of inequalities. The rich and powerful tend to grab land from the poor and remain protected by those in the political class. The land question in the region remains unsolved. In Kenya, politics and land plays out a re-allocation game that creates losers and beneficiaries with each subsequent time (Levien, 2013). Land legislation continually has challenges on adoption of concrete laws that will ensure equality and justice on the land issue (Boone, 2012).Greiner et al. (2011) also inputs that, in pastoralist areas, violent conflicts influence has persistentlybeen pointed out to political elites who antagonistically bring out community historical injusticesand contemporary marginalization for their own political gains and electorates trust.

Gakuria (2013) further asserts that, through acts of commissions and omissions, politicians can facilitate conflicts by spreading propaganda during electioneering period or sponsor raids for political gains and enhanced reputation.

Boone (2012) embarked on a research to determine the interrelationship between distributive politics and land conflicts. Through the use of qualitative data, including informative interviews and observation, he was able to come up with various findings. Some of the findings include; most conflicts emanate from the colonial injustices, and evictions for infrastructural development. He recommended passing of proper land policies that are inclusive is paramount in ensuring reduced land disputes and conflicts.

Goldsmith (2011) ascertains that the politics of land question in the delta is tied to the historical land injustices since the pre-colonial times (Majimbo era) due to the marginalization of the coastal people by the sultanates and the British colonial rule. This led to the formation of secession groups such as the Mombasa Republican Council (MRC) out of dissatisfaction and the feeling of marginalization by the coastal population (Goldsmith, 2011).

After the emergence of the devolved system in 2010, the centralized governance system was replaced by a more inclusive system of devolution to counties. However, Kramon and Posner (2011) discovered that the system that was supposed to bring more inclusivity had brought more ethnic rivalry. Hence what was supposed to provide equality only resulted to vertical devolution rather than both vertical and horizontal decentralization of powers and gains.

Historical analysis of warfare shows that the Tana Delta clashes occur before each general election and stop as soon as the elections are over. Local leaders from either community exploit the animosity between the two communities causing retaliatory attacks on both sides. The attacks

cause loss of lives and displace members of the affected community from the area and hence enabling leaders to remain with the voter base from their own community (Etafa, 2019).

Clashes have rampant in the Tana Delta occurring cyclical as close as annually. This result to death among the involved communities, over 180 killings was reported in 2012 -2013 clashes wavewith displacement of over 34,400 people. More than 700 houses were reported to have been burntto the ground and other properties and assets were such as; granaries, crops, livestock, water pumps, irrigation structures and equipment worth millions of money either destroyed or stolen during the conflicts (SIF, 2013).

2.4 Land based conflict resolution strategies

Social cohesiveness is a vital aspect in the sustainability of peace among communities living together. In the occurrence of conflicts, effective measure or strategies needs to be employment to sustain a peaceful coexistence between the involved parties. Otherwise, prolonged conflict periods always lead to stunted economic growth, loss of life and displacement of families which creates long-term psychological effects (Lavi, 2015). According to FAO (2017), there exist several approaches and mechanisms to the management of land-based conflicts i.e. customary, government based. Customary approaches are mostly used by resources users, community members, and public officials to solve such conflicts. This approach is also anchored in the CoK 2010 through the empowerment of local communities to settle disputes through local initiatives that are in line with other national statutes. Customary approaches – negotiation, mediation and arbitration- are more coercive in nature and might consume a lot of time but have led to short term results in most cases (Lavi, 2015).

Formal conflict resolution mechanisms include modern ways of ending violence either through legal redress, formal arbitration, formation of a tribunal and other legal institutions. These methods

are mostly used by government administration and the elite in the community in solving the conflicts. Other government-based interventions include disarmament programs, imposition of a curfew (ACCORD, 2018). In Gakuria (2013) it is noted that government often sends security personnel to communities with violent conflicts of high magnitude to arrest, and disarm instigators. However, these operations in most cases turn brutal and affect children and women leading to historical scars.

Two conflict-resolution alternatives have been seen to exist between the agro-pastoral and the pastoral communities. Primarily, it exists as; modern or formal systems and the indigenous or informal systems (Muluken, 2020). The formal dispute resolution systems, mainly involves the use of a governmentrecognized court process through a legal contest or a lawsuit. These proceeding are taken througha rigorous process to cross check for evidence any deviation of the due process or any outline inequalities. The informal systems of dispute resolution involve the traditional practices or processof resolution and are practiced entirely among the pastoralist communities in Ethiopia (Muluken, 2020). Sometimes, a blend of all can be used in several instances to get admirable results. However, suchresolution mechanisms should be participatory in nature and should not be seen to target one sideof the conflicting parties hence leading to resistance (Muluken, 2020).

2.4.1 Community peace meetings

Cumulative continuous peace meetings between conflicting communities can highly contribute to stability and reconciliation thus fostering peace between the two groups. This strategy was observed to facilitate the cessation of Mali civil war of 1990 – 1995 after negotiations between the communities (ACCORD, 2012).

In the wake of Covid19, civil societies in conflict regions such as Afghanistan, Syria, and Yemen are getting creative through embracing technology advancement in their advocacy efforts, they are

devising new ways to appeal directly to conflicted groups through digital meetings to press for peace. Lobby groups and other societies are reportedly using platforms such as whatsapp, Google-Meet, and twitter to track cease-fire negotiations and initiate peace process (Lieberman , 2020). In Yemen, 'The Community Peace building Project' through the inclusivity of all societal dimension was designed and implemented to foster a diversity and dialoguing culture with reinforcement of the communities' capacities to hold a dialogue in occurrence of conflicts. The Search-Yemen project practically assists Yemeni communities in the ongoing conflict by advocating for peace talks as an approach conflict resolution among the involved communities (Al-Nabhani, 2018). The project was found to be appropriate in improving social cohesion andcommunity ties, and it directly contributed towards improved local participation in discussion andconflict resolve. The dialogue processes was deemed effective in addressing community issues,and reduction of inter-communal violence risk at the local level in the six target districts (Al-Nabhani, 2018).

2.4.2 Community disarmament

Disarmament process among conflicting communities more so the pastoralist communities who have experienced proliferation of firearms and thus are always at risk of a highly violent conflict, this process has always been used as an approach of restoration of ceasefire and maintenance of order between conflicting communities. It creates a calm environment among pastoralists and eliminates risk of conflict reoccurrence among neighboring communities who otherwise would be armed (Okumu, 2013). Further, in Levin and Miodownik, community disarmament is observed to have led by the notion that weapons are a primary cause of conflict and, therefore, must be exterminatedfor a cessation of the violence. If the tools of combat are eradicated, it is viewed; actors will have

no choice but to commit to peace. Therefore, disarming communities is considered a necessary phase in the peace building process.

Disarmament is one of the founding principles of the United Nations. Article 26 of the UN Charter refers to the promotion of "the establishment and maintenance of international peace and security with the least diversion for armaments of the world's human and economic resources". It also calls for an established system to control armaments as they both play an important role in building a safer and more secure environment for all (Nakamitsu, 2017).

2.4.3 Government mediation

Triche (2014) observed that, state-led peacemaking initiatives have been observed to fail in the northern Kenya region due to rampant corruption, lack of legitimacy, lack of adequate resources, and institutional imperfections. In governments where ethnic politics are strongly embedded, attempts at mediating ethnic conflict disputes tend to exacerbate social tensions. Conflicting sides see action by government or its representatives as a continuation of ethnic biases and thus respond negatively through polarizing defense along their own communal identity (Triche, 2014). Non-governmental andgovernment agencies primarily have a vital position to act on and set an external arbitration conditions to achieve a resolution between the conflicting groups (Tenaw, 2016). The conflicting groups subjectively have a tendency to follow a government led enlightenment and directives in relation to their grievances in view that their judgmental outcomes are not aligned to any side preference but a common agreement. The sequel focuses on a primary common union, equally distributed responsibilities and participation, and serial discourse between the conflicted groups or communities (Tenaw, 2016).

2.5 Theoretical Framework

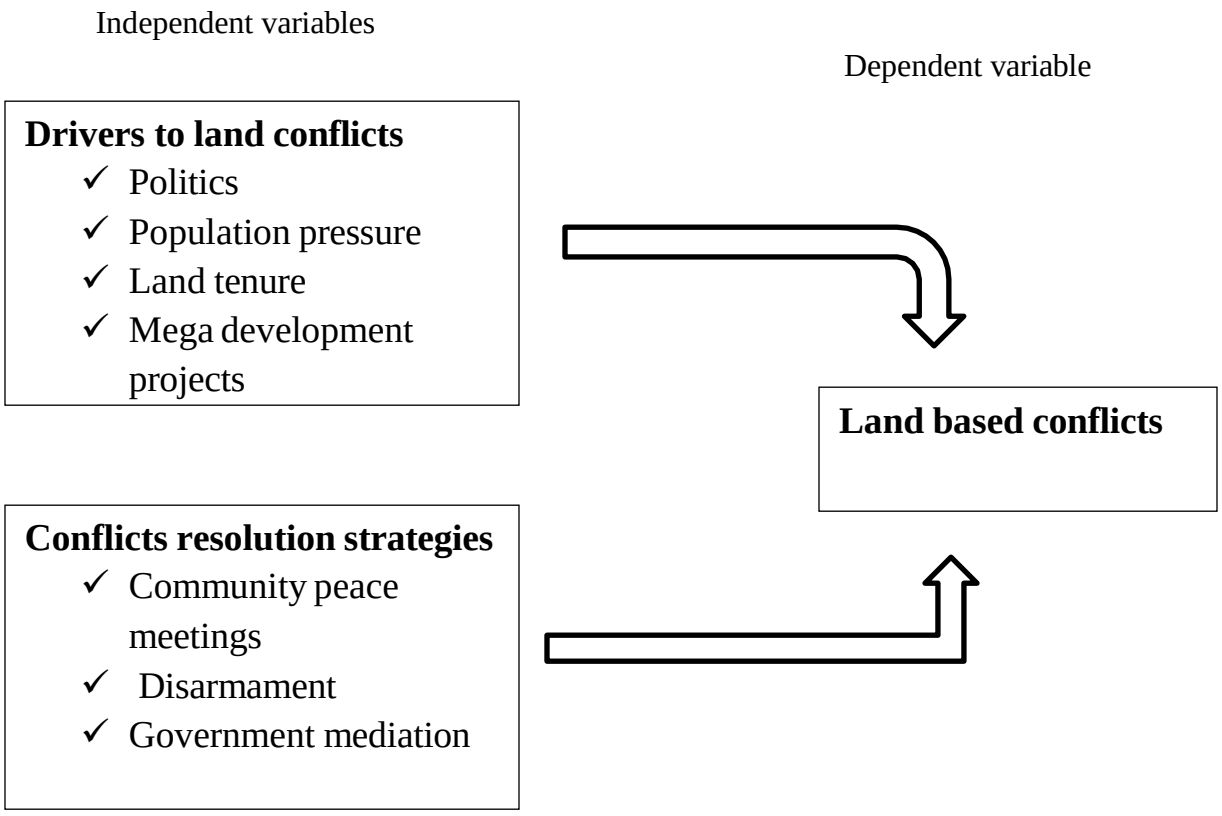
Karl Marx conflict theory suggests that society is in a state of perpetual conflict because of competition for limited resources. According to Marx, social class hierarchy is the main social element that determines persons who control the means of production. The wealthy individuals in the society have greater access to means of production while those of the lower classes have no access. This creates social class conflicts and revolution for equality and equity.

Social inequality occurs as several factions of Tana delta dwellers try to access the natural benefits without considering others hence leading to conflicts among them. The pastoralists prioritize land use for grazing their livestock units while the crop farmers engage in farming activities to enhance their livelihood. This creates tension among the two conflicting livelihoods leading land scarcity hence direct linkage to conflict. Land as a resource is also scarce and the few who own parcels of land seemed to enjoy the monopoly and the gains from land.

2.6 The Conceptual Framework

The conceptual framework demonstrates the relationship between the study dependent variable – Land conflict and the independent variables (drivers to land conflicts and conflict resolution strategies) as discussed in the literature review. In the figure, drivers to land conflicts such a politics, population pressure, land tenure, and mega projects and conflict resolution strategies such as community peace meeting, disarmament, and government mediation both as independent variable directly affects the occurrence and magnitude of land based conflicts. Drivers to land based conflicts are also affected by implementation of conflict resolution strategies which in turn affects land based conflict.

Figure 2.2: ***The conceptual framework***



Source: Literature review

CHAPTER THREE : RESEARCH METHODOLOGY

3.1 Study area

3.1.1 Background

Tana River County is located in the Coastal region of Kenya. The County borders Kitui County to the West, Garissa County to the North East, and Isiolo County to the North, Lamu County to the South East and Kilifi County and Indian Ocean to the South (Tana River County Government, n.d-a). Tana River County straddles betweenlatitudes 000'53" and 200'41'' South and longitudes 380 30' and 40015' east and has a total areaof 38,862.20 Km2. It has a Coastal strip of 76 Kms.The Tana Delta sub-county located within Tana River County. The sub-county was chosen as it has previously acted as a key conflict sites among the pastoral Orma community and the Pokomo farmers. Tana River County consists of 3 Sub-Counties i.e. Tana North (Bura), Tana River (Galole) and Tana Delta (Garsen). Tana Delta Sub-county consists of 6 wards namely Garsen west, Garsen North, Garsen south, Garsen Central, Kipini East and Kipini West (Tana River County Government, n.d-a).

3.1.2 Physical and Topographic Features

The major physical features in Tana River County is an undulating plain that is interrupted in a few places by low hills at Bilbil (around Madogo) and Bura administrative sub-units which are also the highest points in the county. The land in Tana River generally slopes south eastwards with an altitude that ranges between 0m and 200m above sea level (Tana River County Government, n.d-a).

The most important physical feature is the R. Tana that traverses the county from the Aberdares in the North to the Indian Ocean in the South covering a stretch of approximately 500km. Besides the River Tana, there are several seasonal rivers in the County popularly known as *laghas*, which

flow from west towards east direction draining into River Tana and finally into the Indian Ocean. The river beds offer livelihood support to livestock and wildlife especially during the dry season since they have high ability to retain water. River beds are most suitable sites for shallow wells, sub-surface dams as well as earth pans. However, these laghas pose a great challenge to road infrastructure as they cut off roads during rainy seasons making most parts of County virtually inaccessible (Tana River County Government, n.d; Tana River- CIDP, 2018).

3.1.3 Ecological Conditions

The County is divided into four agro- ecological zones namely: CL 3 Coconut – Cassava zone (non ASAL), CL4 Cashew nuts- Cassava zones where the main economic activity is peasantry mixed farming; CL5 Lowland Livestock zone and CL6 Lowland Ranching zones where the locals are involved in pastoral activities (Tana River-CIDP, 2018). The soils range from sandy, dark clay and sandy loam to alluvialdeposits. The soils are deep around the riverine environments but highly susceptible to erosion bywater and wind. Soils in the hinterlands are shallow and have undergone seasons of trampling by livestock, thus are easily eroded during rainy seasons (Tana River-CIDP, 2018).

The vegetation ranges from scrubland to thorny thickets within the riverine area. Shrubs and annual grasses dominate most parts of the region. However, there are enclaves of trees and perennial grasses dominating wetter parts. An invasive tree species called Prosopis juliflora, commonly known in the area as ‘Mathenge’ (after the person who introduced it) has spread rapidly in the area and is threatening to replace most of the indigenous vegetation. It was introduced for fuel-wood production in the Bura Pilot Irrigation Scheme. It grows fast and chokes other vegetation, watering points and the canals, and is colonizing most of the areas that are not cropped, including the riparian environments (Tana River-CIDP, 2018).

3.1.4 Climatic Conditions

The region has a hot and dry climate within ecological zones ranging from III (in the very high grounds) to VII (in the plains or lowlands). Average annual temperatures are about 300C with the highest being 410C around January-March and the lowest being 20.60C around June-July. Rainfall is low, bimodal, erratic and conventional in nature (Tana River- CIDP, 2018; Langat *et al*., 2017). The total annual rainfall ranges between 280mm and 900 mm with long rains occurring in April and May, short rains in October and Novemberwith November being the wettest month. The Inter Tropical Conventional Zone (ITCZ), which influences the wind and non-seasonal air pattern for the River Tana, determines the amount of rainfall along the river line. The hostile dry climate in the hinterland can only support nomadic pastoralism (Langat *et al*., 2017).

The County experiences a bi-modal rainfall pattern which is often erratic. The pastoral and marginal mixed farming livelihood zones rely on the short rains (October – December) while the mixed farming areas are dependent on the long rains (March – June). The mean annual rainfall ranges between 220mm and 500mm except the mixed farming zone which receives rainfall ranging between 750mm and 1250mm (Tana River- CIDP, 2018; Langat *et al*., 2017).

In terms of temperatures, the county is generally hot and dry. Average temperatures range between 21°C to 38°C, with July being the coldest month and January and September being the hottest months (Okal *et al*., 2020).

3.1.5 Administrative Units

Tana River County consists of three Sub-counties namely; Tana North, Tana River and Tana Delta. It is further sub divided into nine (9) divisions, fifteen (15) wards, forty-five (45) locations and ninety-six (96) sub-Locations (Tana River County Government, n.d –b).

Table 3-1: *Area of the county administrative units*

Constituency	Area(km2)	No. of wards	No. of Locations	No. of Sub-Locations
Bura	13,191.5	5	14	29
Galole	9,657.3	4	16	33
Tana Delta	16,013.4	6	15	34
Total	38,862.2	15	45	96

Source (Tana River County Government, n.d-b)

3.1.6 Population Size and Composition

Tana River County population was estimated at 315,943 with 158,550 being males and 157,391 being females. The county has an inter census population growthrate of 2.83 per cent which is little lower than the national average which stands at 2.9 per cent. The male to female ratio stands at 99:100 (KNBS, 2019).

In a county with 76.9 per cent of the population living in absolute poverty, and with the population growth rate of 2.8 per cent, the projected increase in population has a major and direct impact on the basic needs such as food, water, health and education for all ages (KNBS, 2019). The first priority being foodsecurity, it implies that efforts should be made to increase food production to cater for the increasedpopulation

Table 3-2: *Population of Tana River Sub-Counties*

Source: (KNBS, 2019**)**

Sub-county	**Male**	**Female**	**Total**	**Area Sq Km**	**Household**	**density**
Tana delta	55,716	54,924	110,640	15,432	22,791	8
Tana North	59,123	57,632	16,757	13,305	26,886	7
Tana River	43,711	44,835	88,546	9,167	18,565	9

3.1.7 Livelihood Zones

Tana River County is categorized into three livelihood zones namely Pastoral, Marginal Mixed Farming and Mixed farming zones. The Pastoral livelihood zone is occupied by 14 percent of the total population (Tana River-CIDP, 2018). It is characterized by low rainfall ranging between 300mm – 500mm therefore frequented by high incidence of droughts; it however has great potential for livestock rearing. The Marginal Mixed livelihood zoneis occupied by 48 percent of the County's total population. It receives an annual rainfall of 500mm – 750mm and being along river Tana has great potential for irrigation farming (Langat *et al*., 2017). The Mixed FarmingLivelihood Zone is occupied by 38 percent of the total County's population. It receives an annualrainfall ranging between 750mm – 1200mm. It is renowned for its expansive wetlands therefore great potential for agricultural activities (Tana River-CIDP, 2018; Langat et al., 2017).

3.2 Research Design

This is a descriptive research design which aimed at the collection of both qualitative and quantitative data collections through a field survey. The researcher employed various survey methods such as questionnaire and interview.

3.3 Sampling and sample size

3.3.1 Sample size

The sample size was calculated using the Fishers et al. (1998) formula:

$$n \square \frac{Z^2 pq}{d^2}$$

Where,

n= desired sample size (if the target population is greater than 10,000, our target population for Tana Delta was 110,640. (KNBS. 2019)

z= standard normal deviation, corresponds to 95% confidence level (1.96)

p= the proportion in the target population, 50%

q= the value q was determined by 1-p = 0.5

d= the level of statistical significance set. The level of significance or measure of precision for thisstudy was 0.05

Therefore,

$$n \square \frac{1.96^2 x 0.5 x 0.5 \square 384}{0.05^2}$$

Our sample size for this study was therefore 384

3.3.2 Sampling

The study employed a two stage cluster sampling to select participants during data collection. Stage one; the Tana Delta sub county was divided into six existing administrative wards. Each ward was allocated respondents proportionate to its number of households according to the KNBS 2019 figures. The wards are later purposively clustered in to two villages each in consideration of the existing ethnic variations within the delta region, which are the Orma, Pokomo, Wardei, Giriama and Watta.

Stage two; households were selected within each cluster village using systematic random sampling. The sampling interval was determined by the formula K= N/n. where K is the samplinginterval. N, is the population size and n, is sample size. Due to covid19 pandemic outbreak, data collection was achieved in 120 households where, a singlerespondent was interviewed per household.

Table 3-3 : *Determination of respondents per village in the study area*

Ward	**Households per ward (taking average HH size of 4.3)**	**proportion to be sampled**	**Sampled village**	**Ideal proportion of respondents to be taken per village**	**Actual number of respondents taken per village**
Garsen Central	4409	66	Kipao	39	15
			Galili	27	15
Garsen South	3037	45	Oda	21	11
			Tarassaa	24	11
Garsen West	2607	39	Bilisa	21	5
			Konkona	18	5
Garsen North	1880	28	Sera	14	4
			Mnazini	14	4
Kipini east	4774	71	Kipini	35	11
			Chakamba (Matangeni)	36	11
Kipini west	9022	135	Nduru (Chara)	86	14
			Chamwanamuma	49	14
Totals	**25,729**	**384**		**384**	**120**

3.4 Data collection

Data collection was carried out using Transect walk, questionnaires, semi-structured interviews, participant observation and focus group discussions as explained below:

3.4.1 Transect Walk

Transect walk was done in the Tana River Delta as an initial activity. It enabled the researcher to get an overview of the geography of the Tana Delta. Several informal talks were done on the road with community members within the vicinity. Transect walk also helped the researcher appreciate the rich delta ecosystem such as The River Tana, ox-bow lakes, grazing corridors and delta forests.

3.4.2 Questionnaire

This tool provides basic demographic and socio-economic information from our research area.The sample group included residents of Tana delta both pastoralists, agro-pastoralists, farmer and fishermen. As at the time of Covid19 outbreak, a total of 120 questionnaires had been successfully administered to randomly selected villages.

The questionnaire consisted of 3 main sections. The first section focuses on the collection of personal and demographic data such as age, level of education and other demographic parameters. The second section tries to understand the drivers to the land conflict so as to seek to understand the factors that enabled the occurrence of conflict among community members while the last section dissects on the respondents' choices on the strategies that they deem fit in the resolution such land-based conflicts.

For the administration of the questionnaire, three research assistants with the requisite qualification and experience were recruited and appropriately trained by the researcher. The research assistants were selected from across the existing livelihood zones and those that were conversant with the local language and the environment.

A pilot study was conducted to pre-test the questionnaire to enable the researcher to seek more

clarity on questions that were not understood by the community members or those that were a bit ambiguous. Thereafter, the final questionnaires were administered through home or on-farm visits. Respondents were asked questions for a session of about thirty minutes as the research assistants fill the questionnaires on their behalf.

3.4.3 Semi-Structured Interview

Compared to rigorous structured interviews, a semi-structured interview (SSI) consists of open-ended questions that are not predetermined in sequence and can be supplemented by follow-up questions on the spot. 10 SSI was conducted to selected key informants from communities, NGOs and government (both county and national) to get an informed insight into their knowledge, attitude and practices for the scenario at hand. Participants include the Area MCA, Area chief, county assembly researcher, FAO program coordinator, KRCS officer, Community elders, opinion leaders and officers from line departments - county department of land, Agriculture and livestock.

3.4.4 Participant Observation

Participant observation was conducted by the researcher in collaboration of other data collection methods to reinforce the message with the reality on the ground. As a method that originated in anthropology, it works by having the researcher be present and carefully observe practices, activities, relationships or interactions that occur in the everyday life of their research subjects (Brockington and Sullivan, 2003). Researcher visited key ecosystems such as the river delta, estuaries and ox-bow lakes; and government projects such as TARDA, NIB, Galana-Kulalu and other significant projects that utilize public land. Detailed notes were written down in relation to the observations made, either on the spot, or in the evening of the same day. Observation was also carried out when conducting semi-structured interviews and questionnaires.

3.4.5 Focus Group Discussion

In order to get more insight and accurate community perspective on land and land-based conflicts, the researcher arranged and carried out three Focused Group Discussions (FGD) as a way of obtaining qualitative data. FGDs waere carried out in Oda, Ngao and Dalu villages targeting different ethnic compositionsand varying livelihoods within the Tana River Delta. It consisted of a discussion session with groupof community members ranging from 8-15, therefore enabling the researcher to comprehend moreon the data collected from other tools such as the questionnaire. A total of 24 community members were used for the FGDs, eight members per each village FGD. The FGD session took around twohours whereas key informants within the group were identified and appropriately engaged.

3.5 Data processing and analysis

Data from the field methods and tools wee serialized and coded into a data sheet. Data was transferred into excel spreadsheets and analyzed to obtain descriptive statistics. The relevant variables were related to the land based conflict and hence were used to determine the association between the observed and expected outcomes. Descriptive statistical techniques were used to show distribution tendencies that occurred between various relationships. The outputs of the frequency model were tabulated and graphically represented using appropriate graphing system for easier visualization and interpretation.

CHAPTER FOUR : RESULTS

4.0 Introduction

This chapter presents the results, analysis and interpretation of the findings. The purpose of this study was to assess land-based conflicts in Tana River Delta and sought to establish drivers to land based conflicts, establish existing conflict resolve strategies and to determine the best strategies to solving land based conflicts in the Tana delta.

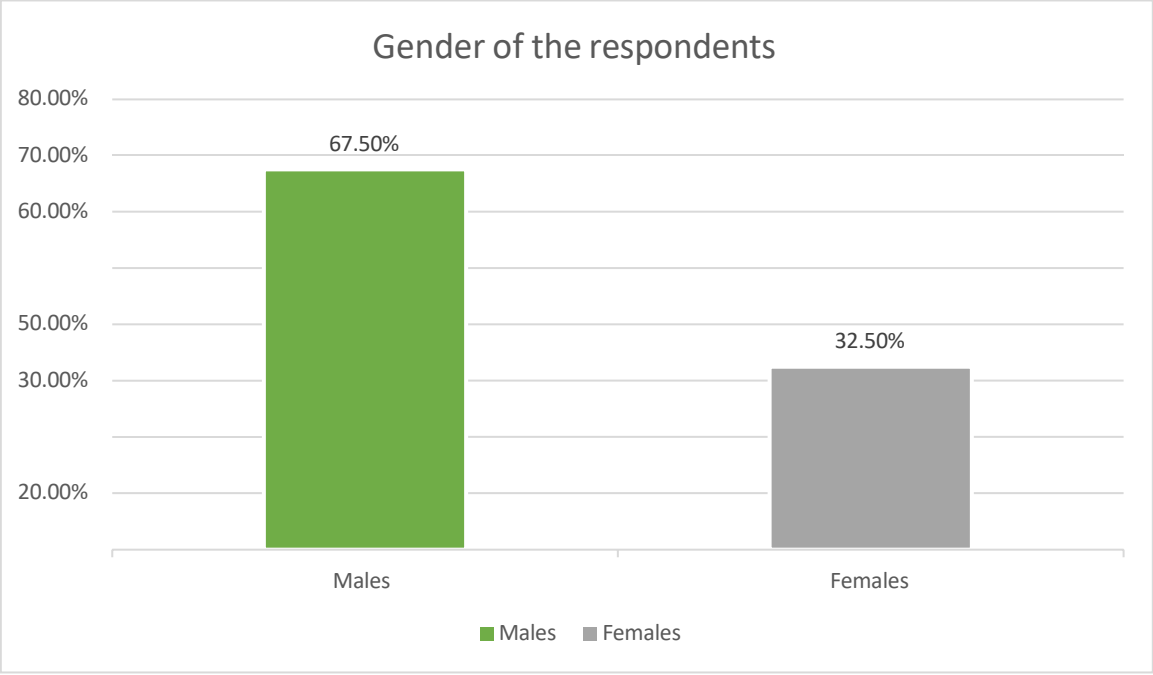
The study used researcher administered questionnaire to collect data. A total of 120 questionnaires were fully completed successfully. Data was entered into excel and analyzed for descriptive analysis, correlation and association between variables using Chi-square and Anova.

4.1 Demographic characteristics

4.1.1 Gender of the respondent

Majority of the respondents, 67.5% (n = 81) were Males and 32.5% (n = 39) were females.

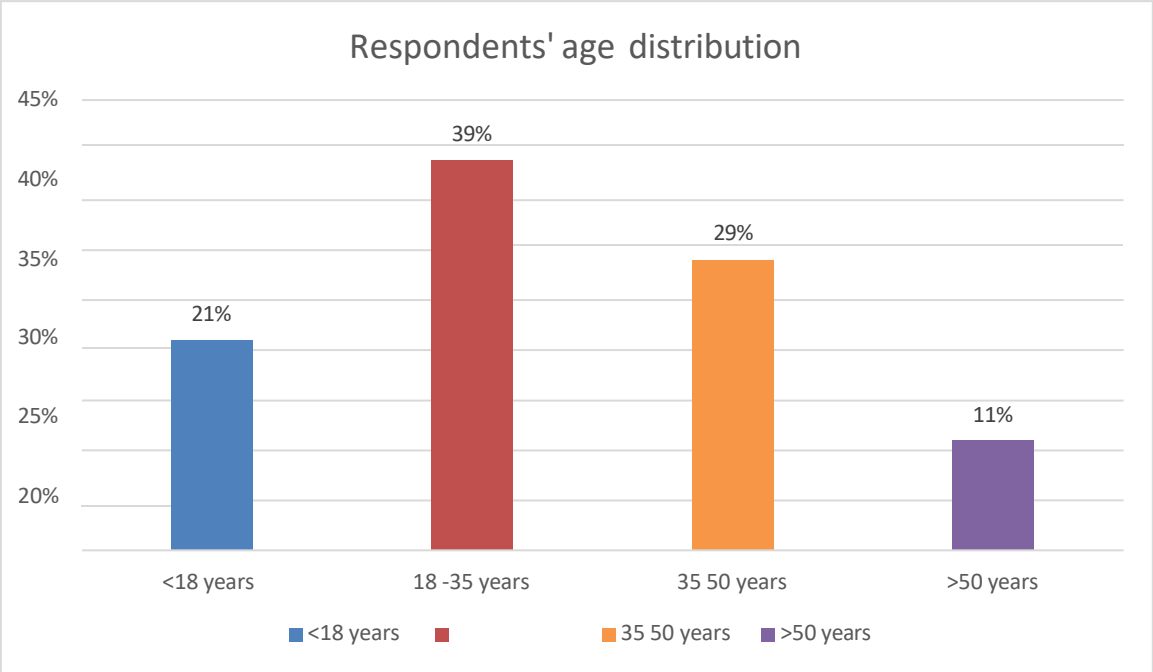
Figure 4.1: *Respondents' gender*



4.1.2 Age of respondent

Most of the respondents 39% (n = 47) were aged between 18-35 years, 29% (n = 35) were aged between 35-50 years, 21% (n = 25) were aged below 18 years, and 11% (n = 13) of the total respondents were above 50 years.

Figure 4.2: *Participants' age distribution*



4.1.3 Marital status of respondent

Majority of the respondents 70% (n = 84) are married, 16% (n = 19) reported to be single, 8% (n = 10) reported to be divorced, and 6% (n = 7) reported to be widowed.

Table 4-1 : *Marital status of the respondents*

	Frequency	Percent
Married	84	70%
Single	19	16%
Divorced	10	8%
Widowed	7	6%
Total	120	100.0

4.1.4 Level of education

37.5% (n = 45) of the participants had primary level education, while 27.5% (n = 33) of the respondents had no formal education. Only 4% (n = 5) had other forms of education such as madrasa.

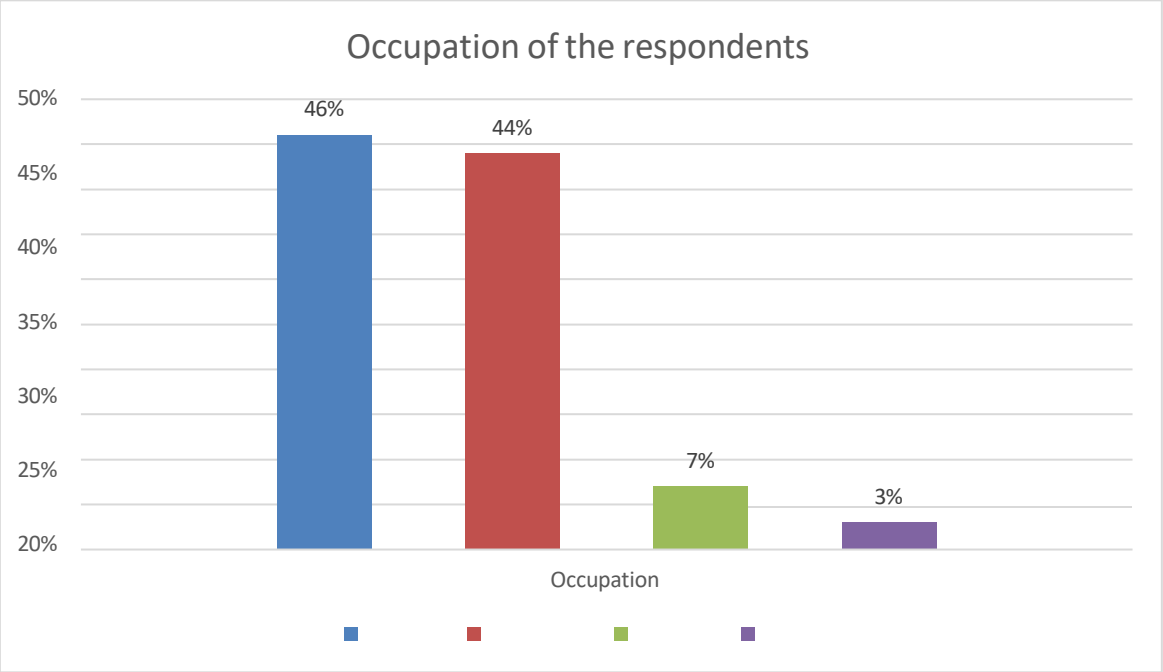
Table 4-2 : *Education level of the participants*

	Frequency	Percent
None	33	27.5%
Primary	45	37.5%
Secondary	26	22%
Tertiary	11	9%
Others	5	4%
Total	120	100.0

4.1.4 Respondents' occupation

Fewer than half 46% (n= 55) of the participants stated that they are farmers, 44% (n = 53) pastoralists, 7% (n = 8) are into business as an occupation, and only 3% (n = 4) were engagedin other forms of occupation.

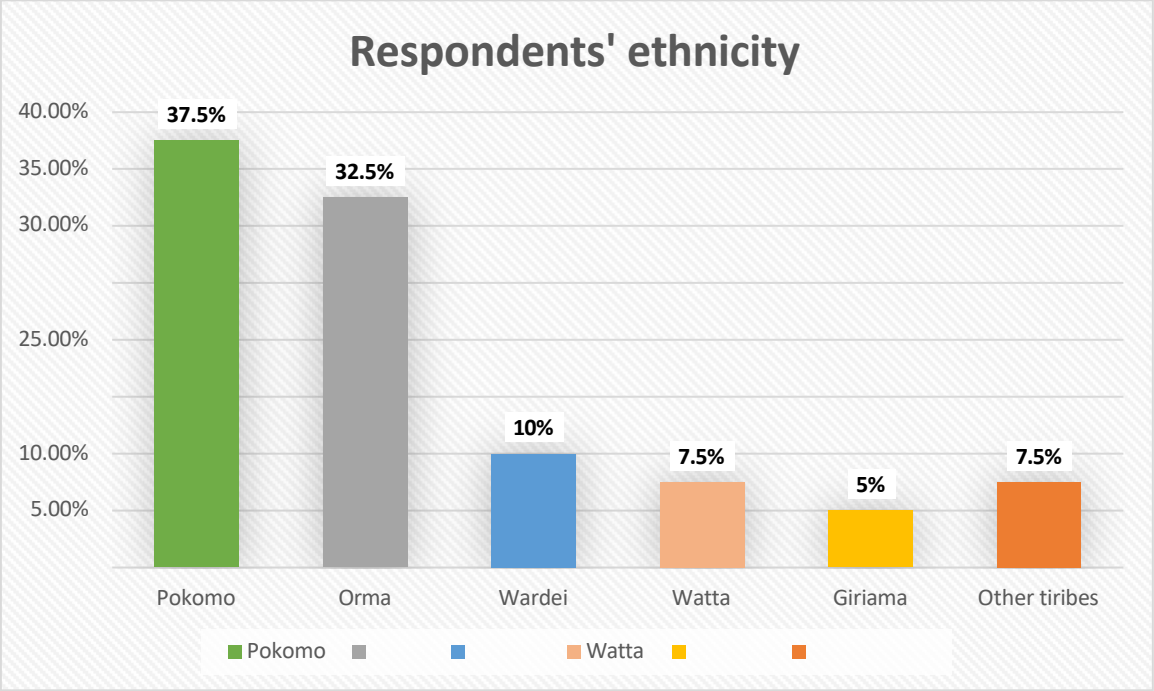
Figure 4.3 : *Participants' occupation*



4.1.6 Ethnicity

37.5% (n = 45) of the respondents were from the Pokomo community, 32.5% (n = 39) were from Orma ethnicity, 10% (n = 12) were of Wardei ethnicity, Watta comprised of 7.5% (n = 9) same as other tribes in the locality. The Giriama community were the minority represented by 5% (n = 6).

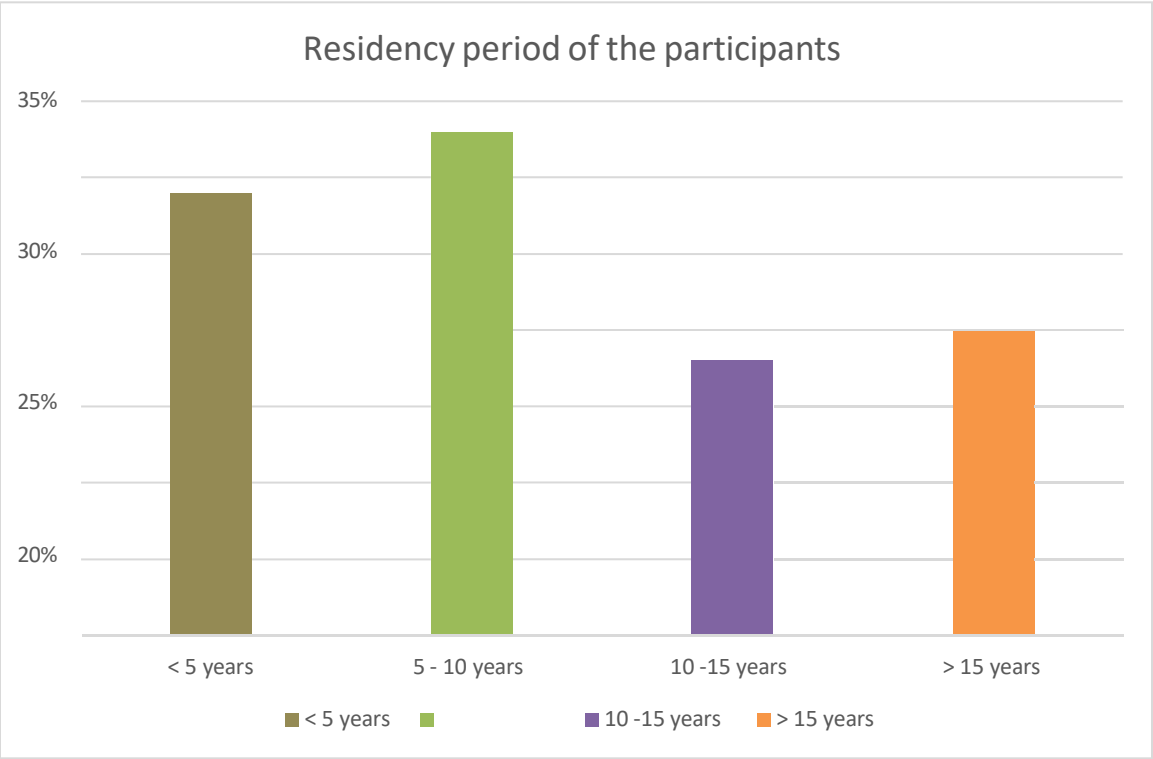
Figure 4.4 : *Ethnic distribution of the respondents*



4.17 Residency period

Among the participants, 33% (n = 39) have lived in the locality for a period of 5- 10 years, 29% (n = 35) have lived in area for a period of below five years, 18% (n = 22) have lived in the area for 10 -15 years, and 20% (n = 24) have lived in the area for more than 15 years' period.

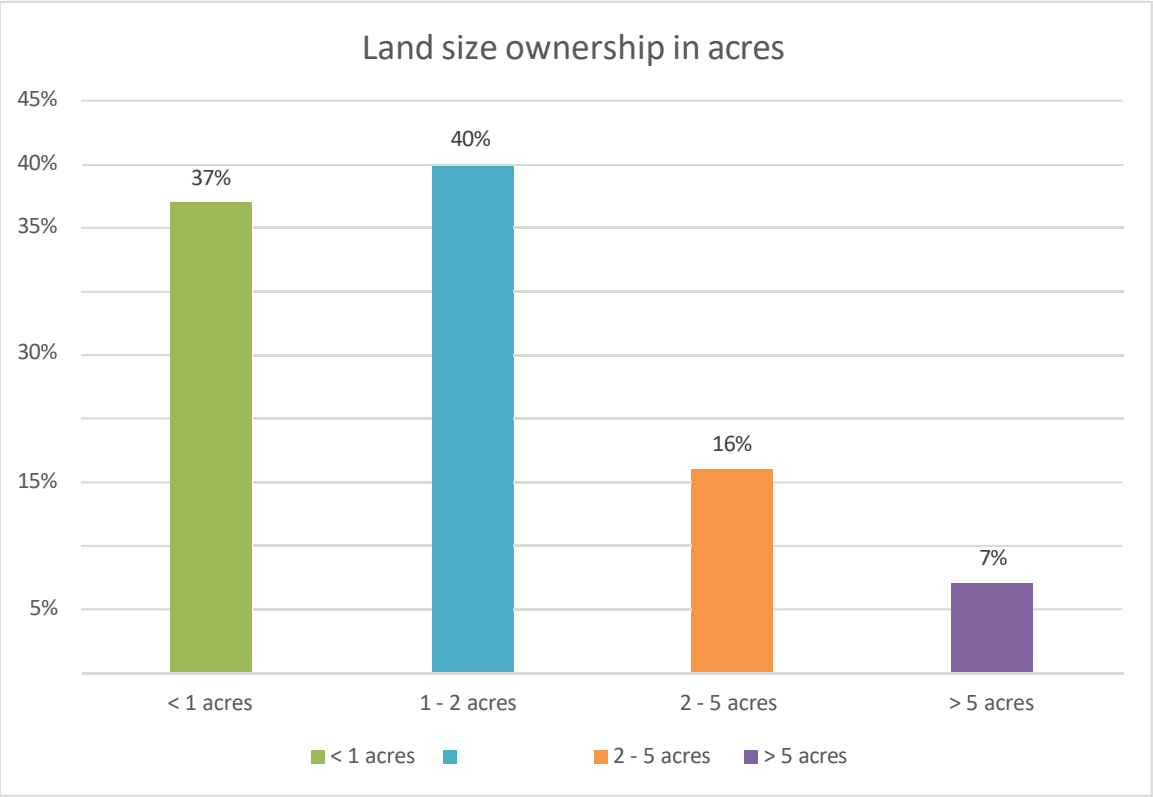
Figure 4.5 : *Residency period of the participants*



4.1.8 Land size ownership in acreage

40% (n = 48) of the participants owned land of size between 1 -2 acres, 37% (n = 45) owned land of size below 1 acre, and 16% (n = 19) owned land ofsize between 2 -5 acres. Land size larger than 5 acres was owned by only 7% (n = 8) of the respondents.

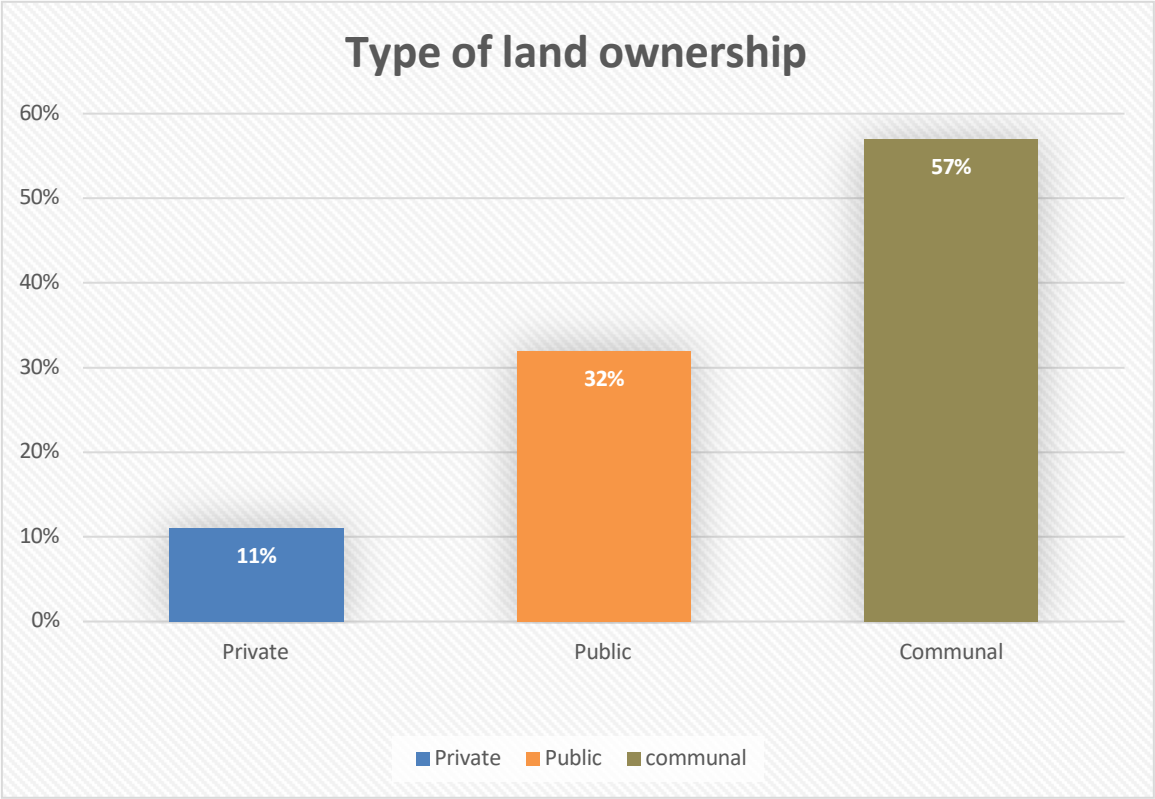
Figure 4.6 *Land size ownership distribution among the participants*



4.1.9 Type of land ownership

Land ownership in the study area was majorly communal. 57% (n = 68) stated their land ownership as communal, and 32% (n = 38) stated that they live in a public land. Only 11% (n = 14) of the participants stated that they privately own the land they live in.

Figure 4.7 : *Participants' type of land ownership*



4.2 Driver to land based conflict in Tana Delta

More than half of the participants, 58% (n = 70) strongly agreed that land tenure is a driver to land conflicts, while only 8% (n = 9) strongly disagreed. The driver was ranked as the first key influence to land conflicts.

Politics was highlighted as the second influencing driver to land conflicts in the Tana Delta. 53% (n=64) of the participants strongly agreed, while 14% (n=17) strongly disagreed.

43% (n = 52) strongly agreed that climate change was a driver to land conflicts, 10% (n = 12) disagreed, and only 7% (n = 8) strongly disagreed. Climate change was highlighted as a third influence to land conflict.

Unemployment was highlighted as the fourth influencing driver to land conflicts in the area. The

response was highlighted by 22% (n = 26) who strongly agreed, while 37%(n = 44) who strongly disagreed.

Mega infrastructural projects were highlighted as a driver to land conflicts in the area of study by 19 % (n = 23) of the participants who strongly agreed, and 21% (n = 25) strongly disagreed. The driver was ranked as the fifth key influence to land conflicts in the Tana Delta.

Proliferation of small and light arms was highlighted as the sixth key driver to land conflicts within the Tana delta by 18% (n = 22) of the participants who strongly agreed,36% (n = 43) agreed, and 27% (n = 32) strongly disagreed.

13% (n = 16) strongly agreed that armed communities and gangs are a driver of land conflicts, 32% (n = 38) agreed, and 33% (n = 40) disagreed. The driver was ranked as the seventh influence to land conflicts in the Tana Delta.

Historical land injustices were highlighted as the eighth influencing driver to land conflicts in the Tana delta by 13% (n = 16) of the participants who strongly agreed, while 16% (n = 19) strongly disagreed.

Population pressure was highlighted as the ninth driver to land conflict in the Tana Delta. 13% (n = 15) of the participants strongly agreed,whereas 51% (n = 61)strongly disagreed.

The reliability test for the likert scale, the Cronbach's Alpha for the variables measuring drivers for land conflicts is given by 0.82; the results indicate that internal consistency for the drivers of land conflict is highly related to the measures for the variable hence high reliability.

Table 4-3 : *Cronbach's Alpha reliability test for drivers of land based conflict.*

Table 4-4 : *Drivers to land conflict in Tana River Delta.*

	Strongly agree		**Agree**		**Disagree**		**Strongly disagree**				
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**Mean**	**SD**	**Rank**
Land tenure	70	58	30	25	11	9	9	8	1.6	0.94	**1**
Climate change	52	43	48	40	12	10	8	7	1.8	0.87	**3**
Mega infrastructural projects	23	19	38	32	34	28	25	21	2.5	1.04	**5**
Armed communities and gangs	16	13	38	32	17	14	40	33	2.6	1.07	**7**
Proliferation of small and light arms	22	18	43	36	32	27	32	27	2.7	1.04	**6**
Historical land injustices	16	13	35	29	50	42	19	16	2.6	1.11	**8**
Unemployment	26	22	39	32	11	9	44	37	2.6	1.20	**4**
Politics	64	53	13	11	26	22	17	14	2.0	1.23	**2**
Population pressure	15	13	21	18	23	19	61	51	3.1	1.17	**9**
Others (specify)	9	7	29	24	28	23	54	45	3.2	0.95	**10**
Reliability test	**0.82**										

4.2.1 Land allocation to investment and impact on conflict dynamics

The study assessed land allocation to investment and impact on conflict dynamics. 47% (n = 56) of the participants highlighted encroachments to community farms as the major factor withimpact to conflict dynamic, 27% (n = 33) highlighted lack of traditional land for traditional dry season grazing as an impact to conflict dynamics, 11% (n = 13) highlighted closure of livestock corridors, and 6% (n = 7) highlighted landallocation to outsiders as allocation factor with an impact on conflict dynamics.

Table 4-5 : *Land allocation to investment and impact on conflict dynamics*

	Frequency	Percent
Land allocation to outsiders	7	6
Encroachment to community farms	56	47
Lack of traditional dry season grazing fields	33	27
Closure of livestock corridors	13	11
Conflicts arising from employment opportunities	11	9
Total	120	100.0

4.3 Conflict management and resolution strategies

Participants highlighted different existing conflict resolution strategies. 51% (n = 61) strongly agreed that joint prayer sessions is one of the existing resolution strategy, while only 9% (n = 11) strongly disagreed. 43% (n = 52) strongly agreed that community peace meeting was an existing resolution strategy, while only 7% (n = 8) strongly disagreed. 20% (n = 24) agreed to mediation by government officials as a resolution strategy, 30% (n = 36) agreed, 29% (n = 35) disagreed, and 21% (n = 25) strongly disagreed. Use of armed forces was highlighted as an existing conflict

resolution strategies by 18% (n = 22) strongly agreedit is an existing resolution strategy, and 27% (n = 32) strongly disagreed. 15% (n = 18) strongly agreed that Imposition of curfew is an existing resolution strategy, 36% (n = 43) agreed,15% (n = 18) disagreed, and 34% (n = 41) strongly disagreed. 13% (n = 16) strongly agreed that Forceful disarmament is an existing conflict resolution strategy, while 42% (n = 50) disagreed.

22% (n = 26) strongly agreed that establishing a new police post was a resolution strategy, 32% (n = 39) agreed, 9% (n = 11) disagreed, and 37% (n = 44) strongly disagreed. Arrest of conflict instigators was highlighted as a conflict resolution strategy by 60% (n = 72) of the participants who strongly agreed whereas only 11% (n = 13) strongly disagreed. 18% (n = 21) strongly agreed that establishing a commissionof inquiry is an existing resolution strategy, 13% (n = 16) agreed, 17% (n = 20) disagreed, and 52% (n = 63) strongly disagreed. 7% (n = 9) strongly agreed that there are other resolution strategies that have not been listed, 24% (n = 29) agreed, 32% (n = 38) disagreed, and 37% (n = 44) strongly disagreed.

The Cronbach's Alpha reliability test for likert scale variables measuring conflict resolution and management strategies is given by 0.894. The results indicate a high internal consistency for the conflict resolution and management strategies that is closely related to the measures for the variable.

Table 4-6 : *Cronbachs alpha reliability for conflict resolution and management strategies.*

Reliability Statistics

Cronbach's Alpha	No of Items
.89	11

Table 4-7 : *Conflict resolution strategies*

	Strongly agree		**Agree**		**Disagree**		**Strongly disagree**				
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**Mean**	**SD**	**Rank**
Joint prayer sessions	61	51	39	32	9	8	11	9	1.7	0.95	**1**
Community peace meetings	52	43	48	40	12	10	8	7	1.8	0.87	**2**
Mediation by government official	24	20	36	30	35	29	25	21	2.5	1.06	**5**
Use of armed forces (KDF/GSU)	18	15	34	28	18	15	41	34	2.6	1.07	**7**
Imposition of curfew	22	18	43	36	32	27	32	27	2.5	1.04	**6**
Forceful disarmament of locals	16	13	35	29	50	42	19	16	2.7	1.11	**8**
Establishing a new police post	26	22	39	32	11	9	44	37	2.6	1.19	**4**
Arresting conflict instigators	72	60	7	6	28	23	13	11	1.85	1.12	**3**
Setting up a commission of enquiry	21	18	16	13	20	17	63	52	3.05	1.17	**9**
Others (specify)	9	7	29	24	38	32	44	37	3.0	0.95	**10**
Reliability test	**0.89**										

4.4 Type of resource agreement existing within the sub county

The study assessed the type of resource agreement that exists within the sub county. Slightly more than half of the participants, 51% (n=71) highlighted demarcation of river access points for livestock corridorsand malkas. 20% (n=24) highlighted community agreed grazing control and management as a resource agreement in the sub county. 16% (n=19) highlighted allocation of land to farmers and pastoralist while 13% (n= 16) highlighted grazing on maize stalks after harvest as resource agreement options practiced within the sub county of study.

Table 4-8 : *Type of resource use agreements existing within the sub-county.*

Resource agreement type	**Frequency** n=120	**Percentage**
Allocation of land for farmers /pastoralists	19	16
Demarcation of river access points (livestock corridors/malkas)	61	51
Grazing on maize stalk after harvest	16	13
Community agreed grazing control and management	24	20
Total	**120**	**100**

4.4.1 Methods for conflict management and rehabilitation

The study evaluated methods for conflict management and rehabilitation. Majority of the participants, 67% (n = 80) highlighted rehabilitation of irrigationschemes as a conflict management and rehabilitation strategy. 37% (n = 44) of the participants pointed out youth disarmament, 55% (n = 66) participants highlighted peace building among communities, while only 8.3% (n = 10) selected introduction of modern farming as a method for conflict

management and rehabilitation.

Table 4-9 : *Methods for conflict management and rehabilitation*

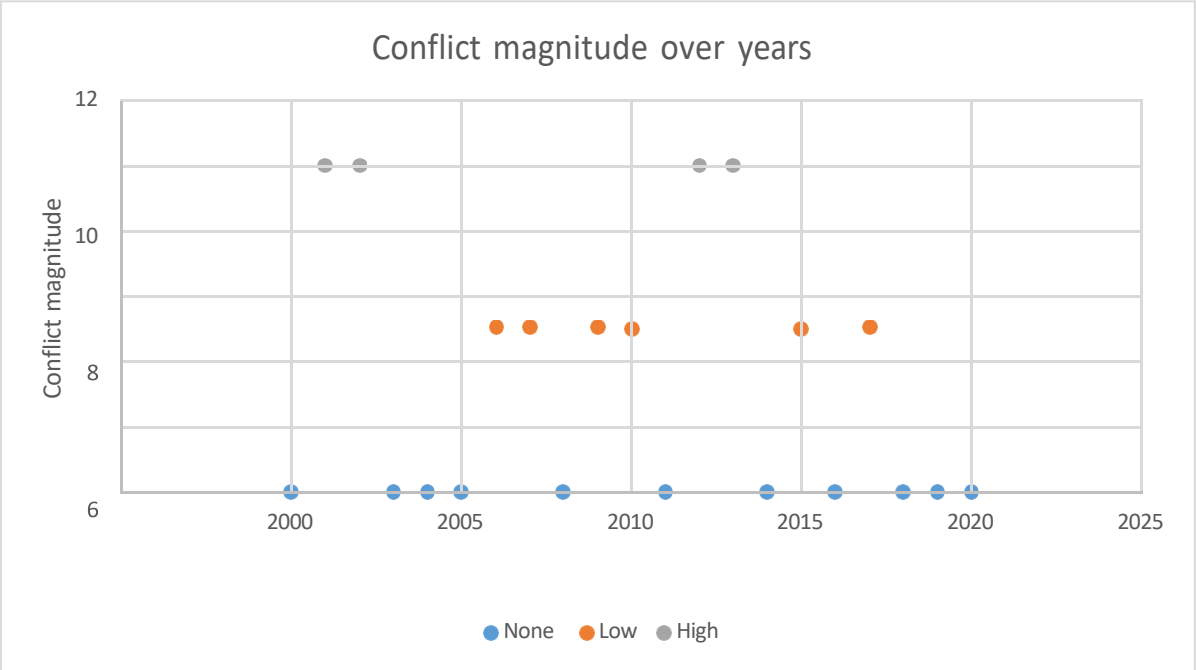
	Frequency (n = 120)	Percent
Restock	20	17
Disarm youth	44	37
Introduce modern farming	37	8.3
Rehabilitate irrigation schemes	80	67
Peace building among the communities	66	55
Court	8	7

Note: Participants selected more than one answer

4.5 Conflict magnitude over years

Figure 4.8 below summarizes data on conflict magnitude over the years as experienced inTana delta. High conflict magnitude has been experienced only four times in the last 20 years, low conflict magnitude has been experienced six times in the last 20 years, the rest of years recorded zero conflict in the last 20 years.

Figure 4.8 : *Conflict magnitude over the years*



4.5.1 Association between residency period and conflict magnitude over the years

To evaluate the relationship between residency period and conflict magnitude in the area of study, cross tabulation analysis and Chi-square were conducted to determine the association.

Table 4-10 below shows Chi square for association between residency period and conflict magnitude over the years. Chi-square =43.598, df =6 p-value < 0.05

Table 4-10 : *Cross tabulation analysis (residence vs conflict magnitude)*

			Conflict Magnitude			Total
			NONE	LOW	HIGH	
Residence	<5years	Count	16	13	6	35
		% within	45.7%	37.1%	17.1%	100.0%
	5-10years	Count	19	12	8	39
		% within	48.7%	30.8%	20.5%	100.0%
	10-15years	Count	1	6	15	22
		% within	4.5%	27.3%	68.2%	100.0%
	>15years	Count	1	3	20	24
		% within	4.2%	12.5%	83.3%	100.0%
Total		Count	37	34	49	120
		% within	30.8%	28.3%	40.8%	100.0%

Table 4-11: *Chi square for association between residency period and conflict magnitude over the years.*

Chi-Square Tests

	Value	Df	Asymp. Sig.
Pearson Chi-Square	43.598a	6	.000
Likelihood Ratio	48.288	6	.000
Linear-by-Linear Association	33.633	1	.000
	120		

Note: a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.23.

4.6 Association between education level and of land conflicts

To determine the relationship of education level as a secondary influence to land conflicts, a one-way analysis of variance was performed using Anova to determine the association.Table 4-12 shows F = 58.805, p-value < 0.05 and Table 4-13 below shows the SNK test for Anova

Table 4-12 : *Association between education level and land conflicts, ANOVA*

Drivers of conflict

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3155.595	4	788.899	58.805	.000
Within Groups	1542.772	115	13.415		
Total	4698.367	119			

Table 4-13 : *SNK test for ANOVA -Drivers of conflict*

Student-Newman-Keulsa,b

Education	N	Subset for alpha = 0.05			
		1	2	3	4
Other	5	17.20			
Tertiary	11		23.64		
Secondary	45		24.16		
Primary	26			29.00	
None	33				35.12
Sig.		1.000	.718	1.000	1.000

Note: Means for groups in homogeneous subsets are displayed.

Uses Harmonic Mean Sample Size = 13.093.

The group sizes are unequal. The harmonic mean of the groupsizes is used. Type I error levels are not guaranteed.

4.7 Correlation between existing strategies and drivers to land conflicts

Bivariate correlation analysis was performed to assess the correlation between existing strategies and drivers to land conflicts. Table 4-14 below shows $r = -0.601$, p-value < 0.05.

Table 4-14 : *Correlation between existing strategies and drivers of land conflict*

Correlations between existing strategies and drivers to land conflicts

		Drivers of conflict	Conflict management and
Drivers of conflict	Pearson Correlation	1	.601**
	Sig. (2-tailed)		.000
	N	120	120
Conflict management and Resolution	Pearson Correlation	.601**	1
	Sig. (2-tailed)	.000	
	N	120	120

Note: Correlation is significant at the 0.01 level (2-tailed).

CHAPTER FIVE : DISCUSSION

5.0 Introduction

This chapter reviews each of the key study findings as related to the research objectives and within a viewpoint of previous literature.

5.1 Drivers to land-based conflicts within the Tana River Delta

The study evaluated the drivers to land based conflicts in the Tana Delta. From the findings, land tenure was identified as the key most driver to land-based conflicts. More than half of the participants 58% strongly agreed that land tenure exerts influence to land based conflict in the Tana Delta. The findings is supported by FAO (n.d) conclusions that land related conflicts among many communities especially in the ASALs, are influenced by aspects of insecurity due to land tenure rights. In this study, land tenure issues may be attributed to the fact that more than half (57%) of the participants own land communally. With the predominant community being pastoralist, insecurity over land tenure rights tend to increase as ethnic and farming diversity increases.

Politics was found to be the second key most influence to land conflicts, slightly more than half (53%) of the participants strongly agreed that it is a driver to land based conflict. This is in line with Gakuria (2013) that, land conflicts in the ASALs and pastoral communities can result due to political orchestrated incitements among the communities building up tension and conflict occurrence. In this study, the findings may be attributed to education level among most of the inhabitants, only 22% of the participants were found to have secondary education and above. Climate change was highlighted as the third most to influence land based conflicts by less than half (43%) of the participants who strongly agreed. The finding concurs with Benjaminsen (2016) that, prolonged drought period and changes in annual rain patterns due to climate change

leads to decrease in water and pasture areas thereby competition for pasture and grazing land increases between the communities and may result into a spiked conflict. In this study, climate change-land conflict may be attributed to variation in community land activity, where competition for resource such water and fertile land occurs between the farming community and the pastoralist community who are the major inhabitants in the region of study. Farming and pastoralism were highlighted as the key activities of the respondents.

Unemployment was identified as the fourth most influence to land conflict in the region of study. The driver was highlighted by 22% of the participants who strongly agreed and 32% who agreed.

Mega infrastructural projects such as TARDA irrigation project and Galana –Kulalu project was highlighted as the fifth influence to land conflicts by 19% of the participants who strongly agreed and 32% who agreed. This in the study is attributed to encroachment into community and public land that was previously used as pasture zones.

Proliferation of small arms among the community was highlighted as the sixth most key influence to land conflicts by 18% of the participants who strongly agreed and 36% who agreed. The finding agrees with Gakuria (2013) that proliferation of small arms among communities in the ASALs leads to livestock theft, pasture conflicts and shift banditry which can incite intercommunity conflicts. This in this study may occur due pastoralism and recurrent intercommunity land conflicts.

Armed communities and gangs was identified as the seventh key most determinant to land conflict by 13% of the participants strongly agreed and 32% who agreed. The finding also agrees with Gakuria (2013) that, pastoral communities acquire weapons such as guns, machetes in the name of protection and defense from raiders and thieves but instead use this weapons to fend for pasture areas and other encroachments and is responsible for a high death turnover in

the occurred intergroup conflicts. Community arming in this study may be attributed by the frequent recurrence of high – low magnitude conflicts in the locality, findings indicate every year there was occurrence of conflict of either high or low magnitude until the last 3 -4 years. Historical land injustices was highlighted as the eighth most influencing factor for land based conflicts, slightly less than a half (42%) of the participants disagreed that it is a driver to land conflict. The finding disagrees with Boye (2011) that, historical injustices among pastoral communities such raids, maiming and displacements is a major cause to land conflicts. This in this study is attributable to the fact that only 20% of the participants have lived in the area for more than 15 years despite most of the participants (39%) being aged between 18 -35 years hence no ancestral inhabitants in the studied population.

Population pressure was the least highlighted influence to land conflict in the study by 13% of the participants who strongly agreed and 18% who agreed. The finding disagrees with Mwesigye and Matsumoto (2019) conclusions that population pressure and internal migration weakens social cohesion thereby affecting community land allocation conflict resolution strategies negatively resulting to land conflicts. This in this study may be as a result of non-native settlement in the area as conflict magnitude has reduced from high to low and none in the last three years, most participants (33%) have a residency period of between 5 – 10 years.

5.2 Existing land-based conflict resolution strategies in the Tana Delta

The study intended to determine the existing resolution strategies to land based conflicts in the TanaDelta. Joint prayer session was identified as the most practiced resolution strategy in the Tana Delta. Slightly more than half of the participants (51%) strongly agreed and 32% agreed. The findings concur with Njoroge (2011) that, for a multi-ethnic community, religion becomes the binding factor of unity and inclusivity; thereby a joint inter-denomination prayer session becomes a vital approach for peace and reconciliation. An inclusive conflict resolution approach

fits in this study due to the ethnic diversity of inhabitant communities within the Tana Delta. From the findings, 43% of the participants strongly agreed and 40% agreed that community peace meeting is practicedin the region as conflict resolution approach. The conflict resolution strategy was ranked second most utilized strategy. Chepkoiywo (2010) agrees with the finding by highlighting that community dialogues and discussions through community organized peace meetings can yield an agreement between twoconflicting communities. A twice a month active community peace meetings was found sufficient to resolve a low to medium intensity conflict magnitude and maintain peace betweenthe communities. In our study, inhabitants are from various ethnic communities with different agricultural activities, the region has five different ethnic communities, the Pokomo predominate with 37.5%, and majority of the inhabitants are pastoralist and farmers. Therefore, a conflict between grazing land and farming land can easily be resolved through a community peace meeting.

Highlighted as the third most utilized conflict resolution strategy in the area, arresting of conflict instigators was highlighted as a resolution practice within the locality by majority of the participants (60%) who strongly agreed and 6% who agreed. The finding is positively supported by Karumbiri (2019) observation that, arresting conflict initiators reduces conflict recurrence and magnitude hence a pathway for resolve and maintenance of peace.

Establishing a new police post was highlighted as a conflictresolutionstrategy utilized in the region by 22% of the participants who strongly agreed and 32% who agreed. The strategy was ranked as the fourth most utilized conflict resolution approach within the region. Establishing a new police post can be viewed as an avenue for improved community policing, standardized and non-partisan conflict resolution pathway and community monitoring for tension for an effective early resolution. A new police post also ensures that security is maintained within the region of jurisdiction (Peyton *et al*., 2019; Chijoko *et al*., 2020).

Mediation by government officials was ranked as the fifth most utilized conflict resolution approach in the region by 20% of the participants who strongly agreed and 30% who agreed. The finding is in line with Apiyo (2014) conclusion that, pastoralist communities in her study used indigenous approaches in prevention, management and resolution of conflicts. They used strategies such as negotiations, mediation, and adjudication both by government officials and NGO bodies. In our study, government negotiation on land related conflicts may be attributed to land ownership. From our findings, 32% of the participants live in public land, therefore, a government official mediation and negotiations for peace on land based conflicts would be an ideal approach to reach agreement on land allocation, issuance of tittle deeds and gazettement of neutral grazing fields.

Imposition of curfew was ranked the sixth most utilized conflict resolution strategy in the region by 18% of the participants who strongly agreed and 36% who agreed. However, Khalif & Oba 2013 disagrees with their observation that, imposition of curfews and limitation of movements within a conflict zone only limits planning meetings and raids by the conflicting communities thereby postponing or prolonging the conflict period. The study argues that the strategy does not actually resolve an existing conflict. From our findings, imposition of curfew can only be effective if implemented alongside other conflict resolution strategies since most inhabitants leave communally. As a stand-alone, the strategy is not sustainable as it will only strict raid incidences.

Use of armed forces such as KDF and GSU was ranked seventh utilized strategy for conflict resolution in the region by 15% of the participants who strongly agreed and 28% who agreed the finding is in line with Sharamo (2014) who observedthat, calmness and peace was restored in Isiolo County after government response throughdeployment of heavy security personnel and arrest of persons believed to be fanning and sponsoring the violence in the area.

Forceful disarmament of youths and gangs was highlighted as an existing conflict resolution strategy by 13% of the participants who strongly agreed and 29% who agreed. The strategy was ranked the eighth most utilized and is supported as an effective approach by Levin & Miodownik (2016) who argues that, disarmament is guided by the notion that weapons cause conflict and, therefore, must be eradicated for the cessation of violent conflict. If the combatting tools are eliminated, it is viewed that actors will have no choice but to commit to peace. Therefore, disarming communities is considered a necessary phase in the peace building process (Levin & Miodownik, 2016). The argument is applicable in the Tana Delta setting as most pastoral communities are alwayslinked with acquisition of firearms for protection and safety of their herds. However, the firearms may also be usedto threaten neighboring communities leading to the emergence of tension and conflict. Setting up a commission of inquiry was highlighted as the least most utilized conflict resolution strategy within the area. Arguably, an inquiry can be effective when the calmness has return to normal as a fact finding approach (Loyle & Binningsbø, 2018).

5.2.1 Resource use agreement approaches existing within the region

Resource use agreement approach is an essential factor in an ethnic diverse area where land is owned communally. It reduces the incidence of conflict arising due common resource use. From the findings, 51% of the participants highlighted demarcation of river access points for livestock corridorsand malkas at the community level as an effective resource use agreement approach. 20% of the participants highlighted community agreed grazing control and management as another resource use agreement utilized in the region to reduce conflict incidences. The finding is in line with Bukari et al. (2018) conclusions that a cultural-diverse community calls for a "hybridity of peace" which can be achieved through negotiations, reciprocity, adaptation, and recognition of differences. Recognizing that farmers needs land to farm and herders needs land

to graze their animals is essential to develop a plan for area allocation for farming land and area for grazing. Furthermore, herders negotiating with farmers on allowing their animals to graze on the post-harvest forage can go a long way in ensuring a mutual coexistence without the emergence of conflict (Bukari et al., 2018). The sentiments are also echoed in our findings where 16% of the participants highlighted allocation of land to farmers and pastoralist and 13% highlighted grazing on maize stalks after harvest as an existing resource use agreement practiced within the region.

5.3 Best strategies for conflict resolve in the Tana River Delta

The study aimed to identify the best strategies for conflict resolution the Tana Delta. 67% of the participants suggested rehabilitation of irrigationschemes as a conflict resolution strategy. Luke et al. (2005) supports this finding with the conclusions that rehabilitation of irrigation schemes is meant to facilitate the community with a form of employment and create a one on one personal interaction that enhances good relationship. An irrigation project such as the Tana Delta irrigation (TARDA) project was aimed to create employment and foster intermingling of the communities around through a shared non-community owned entity. Therefore, with the finding that more than one third of the participants (37.5%) had primary school level of education, the locals will reap benefits through employment and diversity in income activity, post-harvest forage from the farms can also be used as animal feeds thereby reducing unemployment rate and competition for pasture.

Peace building among the communities through sports, joint prayer session and communitypeace meeting was highlighted as a key strategy for conflict resolution by more than half of the participants (55%). The finding is in line with Huho (2012) who observed that peace building initiatives has a high positive impact on reducing instances of land conflicts more so among the pastoralist communities. From the findings community led initiatives such as joint prayer

sessions and community peace meeting were identified as the most utilized existing conflict resolution strategies, it depicts that they are effective approaches.

37% of the participants highlighted disarmament of the youth as an appropriate approach towards conflict resolution. The finding concurs with Okumu (2013) that, disarming youth and conflicting communities creates a sustainable environment for infrastructural and socio-economic development among pastoralists, and eliminates risk of conflict reoccurrence among neighboring communities who otherwise would be armed. It also boosts security within the region (Okumu, 2013)

31% of the participants suggested introduction of modern farming as a strategy for conflict resolution. This backs Jayne et al. (2014) arguments that, development of modern agriculture methods, more so in the sub-Saharan region due to the rapidly changing land and population situation, and the immense challenges of increasing land pressures characterized in context of current evidence of unsustainable agricultural intensification, quantitative traditional methods with poor production outcomes and a rapidly rising unemployment rates. These challenges can be resolved by introduction of modern qualitative agriculture methods but will require explicit policy actions to address the uniquedevelopment challenges in densely populated rural and arid areas. This in this study fits-inas most communities still practice traditional pastoralism and farming practice, introduction of modern farming such as zero grazing and community ranching practice offew but quality livestock will reduce pressure on grazing land and also provide more farmproduction output from a small piece of land since most inhabitants (40%) own land of sizebetween 1-2 acres.

17% of the participants suggested restocking of livestock and farm produce lost during conflict occurrence or raids as a lasting conflict resolution strategy.

5.4 Association between residency period and conflict magnitude over the years

Cross-tabulation and chi-square analysis were also performed to analyze for an association between residency period of the participants and conflict magnitude over the years. According to the results, individuals who have lived in the area for more than 15 years haveexperienced most of the conflicts, with 83.3% of these individuals indicating they have experienced high conflict magnitude. The results also indicate that only 4.2% of people who have been living in the area for more than 15 years have experienced no conflicts. Chi-square analysis shows that there is a significant association between conflict magnitude and residency period, as determined by chi-square =43.598, p-value < 0.05. Theresults suggest that the less the residency period of an individual within the locality, the less likely it is for the individual to experience any land conflicts, while the higher the residency period, the more likely the individual will experience land conflicts.

5.5 Association between education level and land conflicts

From the study findings, more than one third of the participants (37.5%) had a primary level education, while slightly less than half (27.5%) of the respondents had no formal education. This signifies a high level of illiteracy and considering the recurrence of the conflict in the region in can be argued that education can be a key contributing factor hindering interpretation of the applied strategies.

A one-way analysis of variance using Anova was conducted to determine the association between level of education and drivers of land conflicts. Analysis findings with dependent variable as drivers of land conflicts, and independent variable as the level of education among respondents, the results show that there is a significant difference in the mean drivers of land conflicts for respondents with different levels of education, as determined by $F = 58.805$, p-value < 0.05. SNK test for the ANOVA test was also performed and the results show that the mean drivers of conflicts are more experienced by individuals with lower education level compared to with a higher education level. The finding is supported by Ostby et al. (2018) who concluded that research evidence strongly suggests that increase in education level has a pacifying effect on most forms of violence including political violence. The study argues that systematic educational inequalities between groups are linked to higher levels of violence. systematic variance in the accessibility to education between religious and ethnic groups may fuel conflict, whether this is caused by grievances or simply by too few opportunities among young people in the disadvantaged groups.

5.6 Correlation between existing strategies and drivers to land conflicts

A bivariate correlation analysis between drivers of land conflict and existing conflict resolution strategies was performed. The findings show that a negative association betweendrivers of land

conflicts and conflict management and resolution strategies exist asdetermined by $r = -0.601$, p-value < 0.05. The results suggest as one of the variables increases, the other decreases, i.e., when the number of drivers of land conflicts increases,the number of conflict management strategies will decrease, and vice versa.

CHAPTER SIX : CONCLUSION AND RECOMMENDATION

6.1 Conclusion

From the study findings, five key most drivers to land based conflicts in the Tana Delta were identified as; land tenure since most participants cited to own land communally while others lived in public land which brought about insecurity of tenure rights, climate changedue to decrease in natural resources brought about by changing weather pattern, politics, armed communities and gangs, and mega infrastructural projects. These drivers were foundto directly determine the occurrence of land conflicts through influence of land allocation,competition of scarce resources and incitement. The study also determined that there was an association between level of education and drivers of conflicts where, drivers of conflicts were more experienced by individuals with lower education level compared to with a higher education level.

The communities in the Tana Delta was observed to use various approaches for conflict resolution, the study identified five primary approaches existing for conflict resolution in the area, these were; community peace meetings, joint prayer sessions, arresting of conflict instigators, mediation by government officials, and imposition of curfew. Some of these approaches were however observed to work in combination in order to achieve a resolve. An negative relationship was found to exist between the existing strategies and drivers to land conflicts where, when one increases the other decreases.

The ideal conflict resolve approaches in the Tana Delta were identified by the study findings as: Rehabilitation of irrigation schemes, to provide employment opportunities and diversify income activities among the residents and provision of livestock feeds post- harvest. Peace building among the communities. Disarmament of the youths in order to maintain of peace.

Introduction of modern farming, this will improve output and maximization of use on a small piece of land and also reduces pressure on the natural resources and land.

6.2 Recommendations

In view of the above research findings, the researcher recommends the following in order to restore productivity of the deltaic ecosystem, combating land degradation, maintaining ecosystem services from land resources and finding a lasting solution to the never ending land-based conflict in the Tana River Delta:

Establishment of a County based land registry land registry in the County. This will aid inthe registration of individual titles and community lands and aid in the land mapping process for proper demarcation of areas.

Establishment of a proper land use planning and land use system. The county Governmentof Tana River to fast track the implementation of the Tana Delta land use plan document prepared in 2012 by the office of the prime minister and other key stakeholders such as Nature Kenya and Wetlands international.

River/Laghas/Ox-bow lakes/Swamps & wetland, traditional wells/Water pans areas shouldbe planned, surveyed and protected as conservation site or tourist attraction sites. Protected shrines/Ancestral and Historical sites should be protected for intended purpose and also astourist attraction

Survey on average size of land for cultivation per household to foster equitable distribution

Formulation of legislations to enhance security of tenure, implementation of the existing legislations that enhance ownership of land by the rural communities such as the

community land act 2016 and its regulations of 2018 (as a shift from individual ownershipto communal ownership of land in a society setup)

More research to be conducted on the ideal efficient utilization of ranches in the localityfor a more increased productivity outcome.

Protection and gazettement of public land to prevent grabbing and misuse.

To address the rising interests in farming land by global and local investors and strategies/ guidelines to be put in place with respect to benefits to local communities.

Local communities should be cushioned from hoarding of land by absentee landlords. Structuring of policy of engagement that compels investors / firms in the locality to stick to allocated areas so as to prevent encroachment into community grazing lands.

To promote village settlements/clusters and setting aside farming land/grazing land. To move people from densely populated areas to sparsely populated areas. To set targets on utilization and productivity on parcels of land depending on suitability of soils and climate.To increase utilization and productivity of land through motivation and provision of agricultural incentives, i.e. farm inputs, seeds, subsidized fertilizers, tractor services, improvement of infrastructure, roads, water harvesting, market linkages, issuing of titles, innovations in climate smart agriculture, focus on agribusiness and value chains. Further introduction of taxes for non-utilization of land in order to discourage under-developmentof the same.

To set minimum and maximum land holding acreages in respect of private land (Article 68c of the CoK 2010) for economically viable activities.

Communities to be given opportunity to make decision of the land tenure Community landor private developing land resource planning tools and governance and decision-support systems; Further studies and research can also look into the role of farming diversity in land conflict resolution and the impact of intermarriages between local communities on land conflicts.

REFERENCES

Al-Nabhani, S. N. (2018). *The Community Peacebuilding Project;Search for CommonGround.* SFCG.

Azeez, I., & Onyema, M. C. (2013). Conflicts of land tenure and tree tenure on landuse and management among agro-based households in Nigeria. *Advanced agricultural research*, 53 - 61.

Aidoo (2000). *Participatory Rural Appraisal of the Oforikrom Community – TechimanDistrict.* Field Document 5, Project TCP/GHA/6715-0065, FAO, Rome.

Apiyo. A. J. (2014). Indigenous conflict resolution mechanisms among pastoralist communities in the karamoja cluster- a case study of the Turkana. Thesis, University ofNairobi.

Behnke R. and Scoones I. (1991). *Rethinking Range Ecology: Implications for Rangeland Management in Africa.* Woburn, UK 19-21 Nov.1991, Commonwealth Secretariat London, UK.

Bennun L., &Njoroge P. (1999). Important Bird Areas in Kenya. The East Africa Natural History Society.

Benjaminsen. T. (2016). An emerging narrative points to global warming as a driver ofconflict in the Sahel. https://www.iied.org/

Boone, C. (2013). Land regimes and the structure of politics: patterns of land-relatedconflict. *Africa: Journal of the International African Institute*, *83*(1), 188-203. https://doi.org/10.2307/23356132

Boles, O.J.C., Shoemaker, A., Courtney Mustaphi, C.J. *et al.* (2019). Historical Ecologies of Pastoralist Overgrazing in Kenya: Long-Term Perspectives on Cause and Effect. *Hum Ecol,* **47,** 419–434. https://doi.org/10.1007/s10745-019-0072-9

Boye. S. (2011). Competing Claims and Contested Boundaries: Legitimating Land Rightsin

Isiolo District, Northern Kenya. SagePub. 46(2), 99-124. https://doi.org/10.1177/000203971104600204

Bruce, J. (2013). LAND AND CONFLICT. USAID land links. 1-4. https://www.land-links.org/issue-brief/land-disputes-and-land-conflict/

Bukari, K., Sow, P., & Scheffran, J. (2018). Cooperation and Co-Existence Between Farmers and Herders in the Midst of Violent Farmer-Herder Conflicts in Ghana. *African Studies Review*, *61*(2), 78-102. https://doi.org/10.1017/asr.2017.124

Chepkoiyo. J. (2010). The impact of community-led strategies on conflict resolution and peace building among pastoralist communities in Kenya: a case study of olmoran divisionof laikipia west district. Thesis, University of Nairobi.

Chigbu, U., Alemayehu, Z., & Dachaga, W. (2019) Uncovering land tenure insecurities: tips for tenure responsive land-use planning in Ethiopia, Development in Practice, 29(3), 371-383. https://doi.org/10.1080/09614524.2019.1567688

Das, P. (2021), Inter-state Border Disputes in Northeast India, Manohar Parrikar Institute for Defense Studies and Analyses (MP-IDSA) issue brief. https://www.idsa.in/issuebrief/disputes-in-northeast-india-pdas-290721

DFID (1999). *Sustainable Livelihoods and Poverty Reduction*. Sustainable LivelihoodsSupport Office, London, UK.

De Jong,L., De Bruin, S., Knoop, J., & Vliet ,J. (2021) Understanding land-use change conflict: a systematic review of case studies. Journal of Land Use Science, 16(3), 223-239. https://doi.org/10.1080/1747423X.2021.1933226

ECLAC. (2018). Development and conflicts linked to infrastructure construction. *FALBulletin, 361*(1). ISSN 1564-4243

Elkahlout, G. (2018). Reviewing the Interactions between Conflict and Demographic Trends in

the Occupied Palestinian Territories: The Case of the Gaza Strip. *Journal of Sustainable Development*, *11*(3).

Etefa, T. (2019). Precursors to Violence: Neglect and Politics in Darfur, Oromia, and the Tana Delta. In: The Origins of Ethnic Conflict in Africa. African Histories and Modernities. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-030-10540-2_3

EU-UN. (n.d). *Land and conflict.* UN.

FAO. (n.d). *Conflict, land and food security in Africa in the face of climate change.*

Froese, R., & Schilling, J. (2019). The Nexus of Climate Change, Land Use, and Conflicts. *Curr Clim Change Rep, **5,** 24–35.* https://doi.org/10.1007/s40641-019-00122-1

IFAD. (2020). *How toprevent land use conflicts in pastoral areas.*

FAO (n.d). 27 Pastoralism, conflict, land and food security in Africa in the face of climate change. http://www.fao.org/

FAO (1993). *Guidelines for Land Use Planning*. FAO Development Series 1, FAO/AGLS, Rome.

FAO (1995). *Planning for Sustainable Use of Land Resources.* FAO Land and WaterBulletin 2. FAO, Rome.

Food and Agriculture Organization (1992). Guidelines for land use planning.

Gakuria. A. (2013). Natural resource based conflict among pastoralist communities inKenya. Thesis University of Nairobi.

Greiner, C., Bollig, M., & Terrence , M. (2011). Notes on Land-based Conflicts in Kenya's Arid Areas. *Africa spectrum, 46*(3), 77-81. https://doi.org/10.1177/000203971104600305

Government of Kenya. (1996). *The Physical Planning Act Cap 28*. Government Printer,Nairobi.

Government of Kenya. (1999). *The Environmental Management and Coordination Act.* Government Printer, Nairobi.

Government of Kenya. (2007). *Kenya Vision 2030*. Government Printer, Nairobi.

Government of Kenya. (2009a). *Tana Delta District Development Plan 2008-2012*.Government Printer, Nairobi.

Government of Kenya. (2009b). Sessional Paper No 9 on National Land Policy.Government Printer, Nairobi.

Government of Kenya. (2010a). National Population and Housing Census, GovernmentPrinter. Nairobi.

Government of Kenya. (2010b). The Constitution of Kenya, Government Printer,Nairobi.

Government of Scotland. (2006). Scottish Planning Act, Scottish Government.

Huho, J. (2012). Conflict resolution among pastoral communities in West Pokotcounty, Kenya: a missing link. Academic Research International. 3. 458-468.

Hurni, H., Tato, K., & Zeleke, G. (2005). The implications of changes in population, landuse, and land management for surface runoff in the upper Nile basin area of Ethiopia. *Mountain Research and Development*, *25*(2), 147-154.

Jansen, B. J. (2018). Humanitarianism as buffer: Displacement, aid and the politics of belonging in Abyei, Sudan/South Sudan. *African Affairs*, *117*(468), 370-391.

Kalabamu, T.F. (2019). Land tenure reforms and persistence of land conflicts in Sub-Saharan Africa – The case of Botswana. **Land Use Policy, 81,** 337-345. https://doi.org/10.1016/j.landusepol.2018.11.002

Karumbiri. M. & Brockhaus. M. (2019). Leading rural land conflict as citizens andleaving it as denizens: Inside forest conservation politics in Burkina Faso. Elsevier.Journal of Rural Studies. 65, 22-31. https://doi.org/10.1016/j.jrurstud.2018.12.011

Khalif, Z.K., & Oba, G. (2013) the period of stop': Narrating impactsof *shifta* insurgency on pastoral economy in northern Kenya,1963 to 2007. *Pastoralism* **3,** 14.

https://doi.org/10.1186/2041-7136-3-14

Langat, P., Kumar, L., & Koech, R. (2017). Temporal Variability and Trends of Rainfall and Streamflow in Tana River Basin, Kenya. *Sustainability*, *9*(11), 1963. https://doi.org/10.3390/su9111963

Lavi, I. (2015). Violence in Prolonged Conflicts and Its Socio-psychological Effects. *violence and mental health*, 3-26.

Levin, J., & Miodownik, D. (2016). The Imperative to Explore the Impact of Disarmament on Peacemaking Efforts and Conflict Recurrence. *Peace Economics, Peace Science and Public Policy*.

Lieberman, A. (2020). Without face-to-face meetings, what does peace building looklike during COVID-19? www.devex.com.

Li, T. M. (2014). What is land? Assembling a resource for global investment.Transactions of the *Institute of British Geographers*, 39(4), 589-602.

Loyle, C. E., & Binningsbø, H. M. (2018). Justice during armed conflict: A new dataset on government and rebel strategies. *Journal of conflict resolution*, *62*(2), 442-466.

Luke. Q, Hartfield. R, & Cunneyworth. P. (2005). Rehabilitation of the Tana Delta irrigation project Kenya; an environmental assessment. Critical Ecosystem PartnershipFund (CEPF). www.cepf.com.

Marjolein, S., & Herman de Wolf (2005). Changing spatial systems and the role of Regional Government; comparing the Netherlands, Delft University of Technology,Netherlands.

Mbuvi, M. , Ndalilo, L. , Matiku, P. , Munguti, S. and Odera, G. (2020) Yearning for an Apple: The Changing Lifestyle of the Tana River Delta Communities in Kenya and Implications on Livelihoods and Conservation of Natural Resources. *Natural Resources*, **11**, 446-472. https://doi.org/10.4236/nr.2020.1110027

Misra, U. (2014). Assam-Nagaland Border Violence. *Economic and Political Weekly*, *49*(38), 15–18. http://www.jstor.org/stable/24480698

Mwesigye. F & Matsumoto T. (2016). "The Effect of Population Pressure and InternalMigration on Land Conflicts: Implications for Agricultural Productivity in Uganda," World Development, Elsevier, vol. 79(C), pages 25-39.

Mwamlavya, H. M., Munga, C. N., Fulanda, B. M., Omukoto, J. O., Thoya, P. Z., Mackay, F., ... & Groeneveld, J. C. (2021). Natural resource-use in the Lower Tana River Delta based on household surveys and remote sensing of land cover and land use patterns. *Western Indian Ocean Journal of Marine Science*, (1/2021), 115-129. https://doi.org/10.4314/wiojms.si2021.1.8

Muluken, T. (2020) The Role of Indigenous Conflict Resolution Mechanisms in the Pastoral Community: An Implication for Social Solidarity in Somali Region, Shineli Woreda. *Open Access Library Journal*, **7**, 1-16. https://doi.org/10.4236/oalib.1106122

Neville, k. J. (2015). The Contentious Political Economy of Biofuels. *Global Environmental Politics* 15 (1): 21–40. https://doi.org/10.1162/GLEP_a_00270

Njagi. T. (2016). Communal land tenure can improve pastoral livelihoods. TegemeoInstitute. Www.tegemeo.org

Nakamitsu, I. (2017). *Disarmament, Non-proliferation Vital for Conflict Prevention.* Moscow State Institute of International Relations (MGIMO).

Nyanjom, O. (2014). Re-marginalising Kenyan Pastoralists: The Hidden Curse of National Growth and Development. *African Study Monographs, 50,* 43 -72.

Odhiambo, M. O. (2015). Securing Community Land Rights in the Kenyan ASALs:Available Legal Options. *ADA consortium*, 30 - 85.

Østby, G., Urdal, H., & Dupuy, K. (2019). Does Education Lead to Pacification? A Systematic

Review of Statistical Studies on Education and Political Violence. Review of Educational Research, 89(1), 46–92. https://doi.org/10.3102/0034654318800236

Okumu, W. (2013). Trans-local Peace Building among Pastoralist Communities inKenya: Case of Laikipi Peace Caravan. *Culture and Environment in AfricaSeries* (3).

Olajos, I. (2018). The summary of the research on agricultural land as a natural resource. *J. Agric. Envtl. L.*, *13*, 190.

Padonou, O. (2016). Côte d'Ivoire's Comeback: The Revival of Ivorian Regional Diplomacy.

Parker, J. (2020). A" Juggernaut of Progress"? Irrigation and Statecraft in Late-Colonial Kenya. *International Journal of African Historical Studies*, *53*(3).

Peyton, K., Sierra-Arévalo, M., & Rand, D.G. (2019). A field experiment on community policing and police legitimacy. *Proceedings of the National Academy of Sciences of the United States of America*, *116*, 19894 - 19898.

Ramsar (2012). Tana River Delta added to the Ramsar List. https://www.ramsar.org/news/tana-river-delta-added-to-the-ramsar-list

Seter, H., Theisen, M. O., & Schilling, J. (2018). All about water and land? Resource-related conflicts in East and West Africa revisited. *GeoJournal*, *83*, 169–187. https://doi.org/10.1007/s10708-016-9762-7

SIF. (2013). *Tana River, Tana Delta, Lamu, Ijara Assessment report.*

Tana river county SECOND COUNTY INTEGRATED DEVELOPMENT PLAN (CIDP). (2018). Council of governors. https://www.cog.go.ke/downloads/category/106-county-integrated-development-plans-2018-2022?download=323:tana-river-county-integrated-development-plan-2018-2022

Tellen, V. A., Anchang, J. A., & Shu, M. (2016). Conflicts over land and pasture in NorthWest Cameroon: Listening to the voices of farmers and grazers.

UNOWAS. (2018). *Pastoralism and Security in West Africa and the Sahel: TowardsPeaceful Coexistence.*

Worsdell, T; Shrivastava, K (2020). Locating the Breach: Mapping the nature of land conflicts in India . Land Conflict Watch. New Delhi: Nut Graph LLP, *Rights and Resources Initiative, and Oxfam India.* https://global-uploads.webflow.com/5d70c9269b8d7bd25d8b1696/5ecd20dd626f166d67f67461_Locating_the_Breach_Feb_2020.pdf

Wehrmann, B. (2017). Land Conflicts: A practical guide to dealing with landdisputes. ISBN 978-3-00-023940-3

Xie, H. (2017). Towards sustainable land use in China: A collection of empirical studies.

Republic of South Africa. (2012). Spatial Planning and Land use management Bill. Government of South Africa.

Zieba , F. W., Yengoh, G. T., & Tom , A. (2017). Seasonal Migration and Settlement around Lake Chad: Strategies for Control of Resources in an Increasingly DryingLake. *Toward Integrated Water-Energy-Land-Food Management*, *6*(3), 41. https://doi.org/10.3390/resources6030041

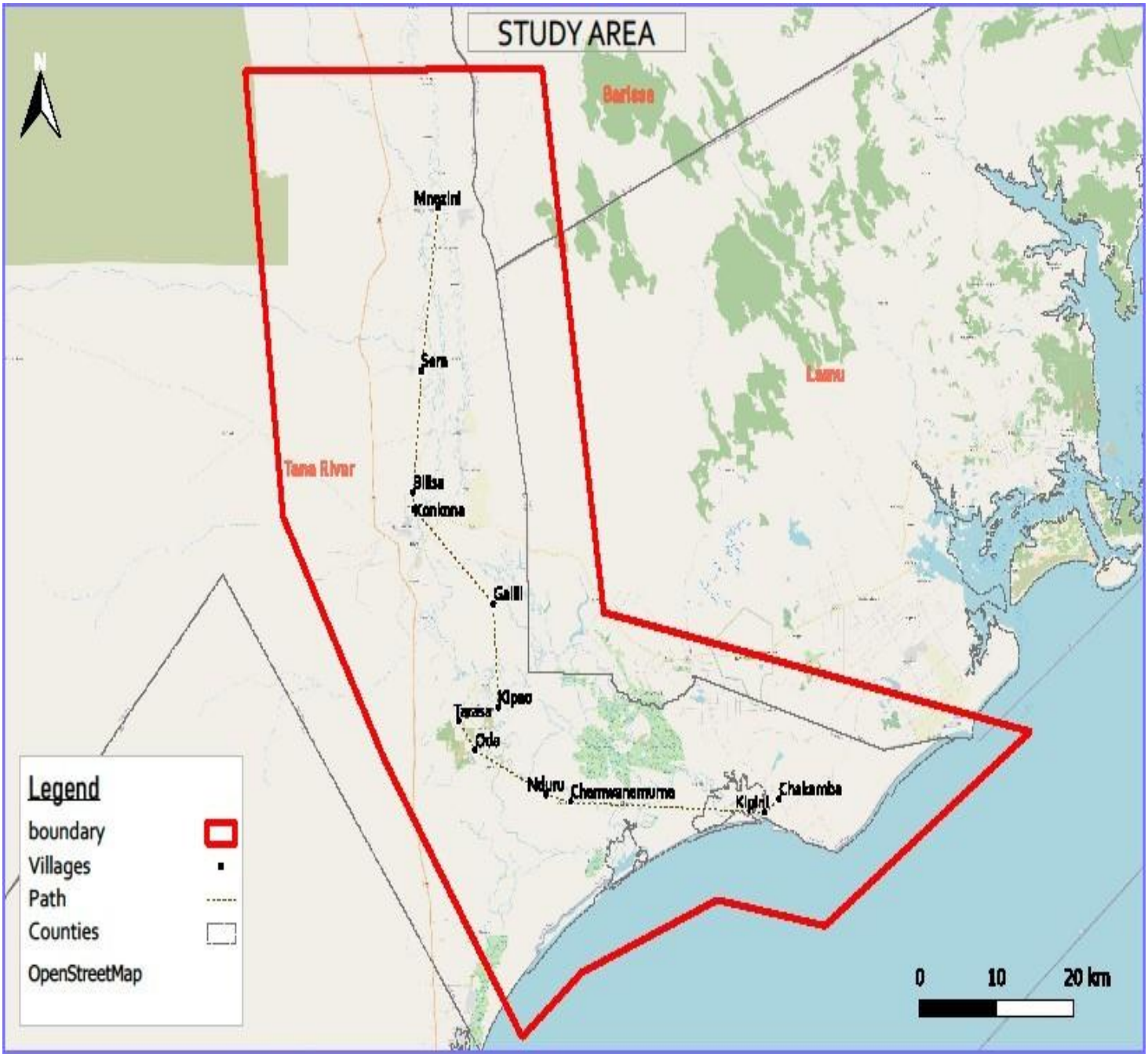
APPENDICES

APPENDIX I: Research Budget

Research budget			
UNIT OF EXPENDITURE	**QUANTITY**	**UNIT PRICE**	**TOTAL**
STATIONERY			
1.PRINTING	150	15	2250
2. PHOTOCOPY	500	10	5000
3.PENS	20	20	400
4. PENCILS	20	20	400
5.ERASERS	10	15	150
6. FLIP CHARTS	3	2000	6000
7. MASKING TAPE	5	200	1000
8. FELT PENS	10	200	2000
9. FIELD NOTE BOOKS	5	150	750
10. FILES	3	150	450
Sub-Total			**18400**
PILOT STUDY			
CONFERENCE HIRE	2	5000	10000
ALLOWANCES	10	1000	10000
TRANSPORT	5	3000	15000
FUEL-LOCAL RUNNING	5	1000	5000
CONTACT PERSON	2	1000	2000
MEALS AND REFRESHMENTS	10	2000	20000
Sub-Total			**62000**
ACTUAL STUDY			
SUPERVISORS	2	**5000@10 DAYS**	100,000
RESEARCHER	1	**3000@10DAYS**	30,000
RESEARCH ASSISTANTS	3	**2000@10DAYS**	60,000
AIRTIME	6	2000	12,000
Sub-Total			**202,000**
FGD COSTS			
HALL HIRE	1	5000	5,000
MEALS AND REFRESHMENTS	25	1000	25,000
CONTACT PERSON	1	1000	1,000
ALLOWANCES	25	500	12,500
FUEL COSTS	1	2000	2,000
Sub-Total			**45,500**

MISCELLANEOUS			10,000
GRAND TOTAL			**337,900**

APPENDIX II: STUDY AREA MAP



APPENDIX III: SURVEY QUESTIONNAIRE

Introduction

My name is Hussein Hanti, a Masters student at Wangari Maathai Institute of the University of Nairobi, Kenya. I'm currently doing my research on land based conflicts inTana Delta sub-County with the aim of giving policy recommendations on lasting peacesolutions and possibly do peace activities hence the need of this data collection. However,this information will strictly be treated private and confidential.

Part A: Respondent Bio Data

1.1. Ethnic group:

(Pokomo, Orma, Wardei, Watta, Giriama)

1.2. Sex:

(Male, female)

1.3. What is youroccupation?

(Farmer, pastoralist, business person, other)

1.4 Education level:

(None, primary, secondary, tertiary, other)

1.5. Age:

(<18years, 18-35years, 35-50years, >50years)

1.6. Marital status Married

(Single, Divorced, Widowed)

1.7. For how long have you been living in thisarea?

(<5years, 5-10years, 10-15years, >15years)

1.8. What is the approximate size of your land?

(Less than an acre, between1-2acres, between 2-5 acres, above 5 acres)

1.9. What type of ownership to your land?

(Private, Public, Communal)

Part B: Drivers to conflict (insert introductory statement)

2.0 Have you ever experienced any conflict recently? Yes…. No……

2.1 If yes, what was the cause of that conflict?

(Land dispute, Access to water, Access to grazing fields, Political contest, other)

2.2 When was the last conflict encountered?

(This year, Last year, 3-5 years ago, 5-10 years ago)

2.3 What are the drivers/enabling factors to the land conflicts here in Tana delta (Rank answers accordingly)?

Cause(s)	**Strongly agree**	**agree**	**Disagree**	**Strongly disagree**
a) Land tenure				
a) Climate change				
b) Armed communities				

and gangs				
c) Mega infrastructural projects				
d) Proliferation of small and light arms				
e) Historical land injustices				
f) Unemployment				
g) Politics				
h) Population pressure				
i) Others (specify)				

2.4 How has the land allocation for investment had any impact on conflict dynamic in the Tana River County? (tick one)

a) Land allocation to outsiders ☐
b) Encroachment to community farms ☐
c) Lack of traditional dry season grazing fields ☐
d) Closure of livestock corridors ☐
e) Conflicts arising from employment opportunities ☐

2.5 What were the aims of your community involvement in the last conflict? Please rank the answers from very important (5) to least important (1)

	Strongly agree	**Agree**	**Disagree**	**Strongly disagree**
Unity of the community				
Intimidation of the other group				
Gain of political power				
As show of might/power				
Stop them destroying our livestock/farms				
Displacing them from the delta				
No idea				
Others (specify)				

Part C: Conflict management and resolution strategies

3.0 How did the government tried to solve the conflict? Rank the answers from very important (Strongly agree) to least important (Strongly disagree)

ITEM	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
Joint Prayer sessions				
Community Peace meetings				
Mediation by Government official				
Use of armed forces(GSU/KDF)				
Imposition of a Curfew				
Forceful disarmament of locals				
Established new police post				
Arresting of conflict instigators				
Setting up of commission of inquiry				
Others (specify)				

3.1 What kind of resource use agreements exist within the sub-county?

a. Allocation of land for farmers/pastoralist

b. Demarcation of river access points (livestock corridors/ malkas)

c. Grazing on maize stalk after harvest

d. Community –agreed Grazing control and management

3.2 How do community members try managing and resolving conflict in their own ways? (tick one)

a. Conducting joint prayers ☐

b. Peace talks ☐

c. Use of mediator or an arbitrator ☐

d. Relocation away from each other ☐

3.3 According to you, what could be done to solve the problem of land-based conflicts in Tana Delta to enhance peace?

Measure	**Rank**			
	Strongly agree	**Agree**	**Disagree**	**Strongly disagree**
Land allocation				
Create more grazing corridors				

Enact appropriate bylaws				
Flag alternative livelihoods				
Encourage intermarriage				
Encourage religious tolerance				
Appropriate land use plan				
Regular peace meetings				
Inter-ethnic schools				
Intercommunity sports activities				

Others (specify)				