

Assessment of Indigenous Institutions in Natural Resources Governance Systems in Pastoral Areas of Isiolo Kenya

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ABSTRACT: Kenya's natural resource base has dwindled over years. The existence of many natural resource policies, some that are incompatible, has resulted in complex rangeland management regimes, giving rise to fragmented interventions and inadequate natural resource policies in relation to pastoralism.

The majority of pastoral land resources held under a controlled access system by the national government that regulates management and utilization of resources. Pastoralists in Kenya have become among the most marginalized and disadvantaged minority groups. This is due to limited or under investment by government and other actors, and access to, or ownership of land, water and other resources, which are fundamental for pastoralism.

This study examines significant obstacles for the establishment of a more inclusive 'governance' approach to natural resource management in northern Kenya, that characterize the customary Boran knowledge such as Deedha's (traditional grazing unit) and formal institutions and seeks to address the tension between them through a legal framework that accommodates both.

The results of the study established existence of the traditional structures and institutions in governance of natural resources within the pastoralist communities in Isiolo County. These institutions have evolved to cope with changing dynamics brought about by formalization of the natural resources governance. The resulted showed that various formal institutions from national government agencies to county government department were involved in management of the natural resources. However, the study established various operational

divergence and links between informal and formal institutions involved in natural resources management.

The study concluded that both informal institution such as Deedha and formal institutions constituted by national and county government did governance of natural resources among pastoralist communities in Isiolo County. The communities however have more trust in the informal structures and institutions because of their flexibility and inclusiveness.

The communities considered informal structure more effective as compared to formal structures. The informal structures were also less prone to corruption compared to formal structures. The study recommends the adoption of integrated system of natural resource governance that incorporate both formal institutions and informal structures each with a clear mandate and responsibility.

Key words: Governance, Livelihoods, Natural Resources, Resilience, Traditional Systems, Pastoralism

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LIST OF ABBREVIATIONS AND ACRONYMS

ANRC	African Natural Resource Centre
ASALs	Arid and Semi-Arid Lands
CNRMIs	Customary Natural Resource Management Institutions
EMCA	Environmental Management Act
IAD	Institutional Analysis and Development
RUA	Rangelands Users Association
WRUAs	Water Resource Users Association
WRMA	Water resources management Authority
NREG	National Resources Governance

CHAPTER 1: INTRODUCTION

1.1 Background Information

Pastoralism, the predominant culture and natural resources management system in dry lands, considered backward by most states, and development programs promoting urbanization, sedentary agriculture, and private ranching are widespread (FAO 2016). Nakangu (2016) argues that, such development programs undermine the various natural resources governance systems attached to the culture and the collective use systems and rights that they support, which is arguably the most secure natural resources management system for the most vulnerable natural resources. Natural resource governance is highly complex and dynamic, involving multiple stakeholders and a variety of interconnecting regulatory frameworks and governance processes that impact on different aspects of use, management and human livelihoods (IUCN, 2011).

With ever-increasing population, the world continues to experience problems that arise from the competition over natural resources. Water is one of the natural resources that continue to cause much tension and conflict among various users. In Africa, there is serious land and other natural resources and environmental degradation compared to other regions. The major challenges Africa faces that have led to environmental deterioration include overgrazing and rapid population growth. The consequences of these have been poor natural resources management practices and lack of proper institutions.

Duda and El-Ashry (2000) argue that water scarcity and fluctuating climate are significant factors that affect economic development of a country. A large proportion of Sub-Saharan Africa (estimated at about 80%) lies in Trans-boundary water basins that are currently water stressed. This limits the economic development of such countries (Duda & El-Ashry, 2000). To further aggravate the situations, hydro dams construction have destroyed the ecosystem especially the floodplains, the downstream environment and the majority of the people that are dependent on the floodplains for survival. In these regions, projects that aim at storing water for electricity production and reduction of downstream floods have had negative impacts such as increased desertification in downstream areas.

According to statistics from the UN (2014), the African continent is the driest continent with Arid and semi-arid areas covering up to 60%. The demand for fresh water is estimated to rise by 40% in African states and this will cause a lot of conflict in Trans boundary basins by 2030 (FAO, 2009). In spite of the fact that the majority of Africans (80%) live in rural areas, only 37% have access to safe water sources (WHO, 2013). A study conducted in Tanzania revealed the existence of water conflicts especially during the dry seasons, which been prolonged by activities such poor land management practices, population growth and increase in smallholder's irrigation projects (Huggins, 2000). According to the findings of Huggins (2000), these conflicts range from legal disputes to violent confrontations and destruction of property between various communities of water users.

1.1.1 Importance of Natural Resources

Access to resources is clearly a factor shaping the conflict because it looks at the rights through land ownership. Many studies conducted on this topic of natural resource related conflicts. These studies propose different approaches to solving resource related conflicts in rangeland regions of around the world. The findings of Bogale and Korf, (2007) suggested that resource sharing offers asset-poor household's opportunities to stabilize and enhance their asset-base in drought years, providing incentives for cooperative rather than conflicting relations with intruding pastoralists. The aspect of resource sharing is however also dependent on trust and Bogale and Korf (2007) did not apply a trust model to enhance accessibility to natural resources, therefore there is a gap that the current study aims to fill. Many scholars have argued that ensuring peaceful utilizing of water resource by all communities is likely to reduce conflicts significantly. Beyene (2007) suggested that the joint effect of an increase in trend of violence and a decline in capacity of customary authority in conflict management advances state role in establishing enforceable property rights institutions. He argues that this would be successful only if policies and intervention efforts redirected at: 1) suppressing incentives for violence, 2) establishing new institutional structures, in consultation with community elders of the involved parties and 3) building internal capacity to monitor conflict-escalating events. The author recognized the role of community elders in helping to reduce intercommunity conflicts.

Bond, (2014) in his study on a holistic approach to natural resource conflict argues that conflict from the perspective of pastoralists and farmers in Kenya were found to be related to trust, communication, security, governance, marginalization and violence. By conducting a thorough conflict context analysis incorporating social, ecological and institutional elements, valuable insights can be gleaned, leading to a more holistic conflict management approach.

Wehrmann (2008) suggests that many conflicts that are perceived to be clashes between different cultures are actually conflicts over land and related natural resources. The author suggested a number of tools with which to analyse land conflicts. He argued that successful analysis of land conflicts is a vital step towards their eventual settlement. Finally, he discusses a wide variety of options for settling ongoing land conflicts and for preventing new ones. He points out establishing adequate institutional framework and re-establishing (traditional) values by creating incentives, checks and balances as well as sanctions aiming at positively influencing people's behaviour as one of the ways of preventing resource related conflicts.

1.1.2 Systems of Natural Resources Governance

Management of the natural systems faces many challenges because of the tendency to be over exploited by various users. According to Bodin and Crona (2009) increased competition and demand for natural resources of all kinds is in turn leading to increased conflicts generated by overlapping resource claims between large-scale resource users and local communities. Governance of ecosystems is inherently difficult since both the natural environment and human societies characterized by uncertainties, complex dynamics, natural variations and scale dependencies. Hence, management of any given resource would benefit from actors agreeing on common rules and practices, coordinating usage, engaging in conflict resolution, negotiating various tradeoffs, sharing information, and building common knowledge (Folke *et al.*, 2005). Helmke and Levitsky (2004, p.725) define informal institutions as socially shared rules, usually unwritten, that are "...created, communicated and enforced outside of officially sanctioned channels".

Traditional policy regimes that have emerged incrementally over long periods to solve simple problems are generally unsuited to meet cross-sectoral and multiscale challenges. In

order to deliver good governance and achieve their intended outcomes, these organizations and the collaborative and multilevel arrangements within which they work requires the guidance of value-based standards in their design and implementation. While new, consciously designed, multilevel governance institutions are clearly needed, suitable principles to guide their design are slow to be advanced (Howlett & Rayner 2006).

Governance has assumed particular significance under conditions of uncertainty and openendedness (Stoker 1998) induced by the trends just outlined, governance affects and is affected by the distribution of power, public decision making, and citizen stakeholder engagement in complex ways. Consequently, governance has taken on a number of features distinct from conventional government. Key among these is an increase in interdependencies among a wide range of actors particularly evident with environmental problems necessitating greater interaction among diverse actors from different territories, at multiple governance scales. In addition, pressures from an informed citizenry for a more participation in decisions that affect their lives have contributed to the trend to a greater horizontal distribution of power. According to the institutionalist school of thought, formal institutions closely related to the corridors of state, its agencies, officials and state sanctioned activities (Boussard, 2000; Tsai, 2002)

1.1.3 Natural Resources Governance Systems in Pastoral Areas of Isiolo Kenya

Pastoralists rely heavily on strategic mobility to ensure access to grazing land and water in areas where seasonal weather patterns mean such resources are not available all year round (NRC, 2014). Mobility among the pastoralists allows for extensive utilization of rangelands as common pool resources through the full use of culture and its attributes (Kaye-Zwiebel and King, 2014). In many pastoral societies, customary institutions play a crucial role in governing natural resource use, in enabling mobility, in managing conflict and in negotiating resource use rights. However, the extent to which these institutions been legitimized by government varies greatly between countries (WISP, 2008). The focus on customary institutions and the need to support their role in natural resource management is also central to the Africa Union Policy Framework for Pastoralism in Africa (2011).

The overlapping mandate of traditional and emerging institutions has remained a major challenge that leads to fuzzy rights, open access abuse of common pool resources such as pasture and water in northern Kenya. However, there is a strong emphasis in the Kenyan Constitution (2010), the National Land Policy (2009) and the County Governments Act (2012) on empowering local communities and their institutions to take greater responsibility for natural resource governance (IIED, 2014). The large and complex social, political, economic and ecological systems involved in natural resource governance makes it difficult to define a starting point of intervention (GSDRC 2011), especially towards sustainable and inclusive growth.

Communal management systems require participatory planning, legitimate and recognized institutions to provide leadership and enforcement of the rules, norms and grazing management (Ostrom, 1990; Roe *et al*, 2009). Customary management cuts across, forests, water systems but is especially prevalent in the drylands ecosystems, which cover 71% of the Eastern and Southern Africa region and are home to more than 40% of the region's population (ESARO, 2010).

Idris (2011) notes that, pastoralists have the ability to successfully assess and manage risks occasioned by the vulnerability that they face in the ASALs from climatic hazards, poverty, conflicts, and diseases that make them shrewd managers of risks and leads to pastoral resilience. It is against this backdrop that the assessment seeks to support the development and implementation of a sound legal and policy framework that integrates traditional system to enhance the sustainable governance of natural resources at sub-national, national, regional and international levels.

Therefore, this research will examine the tension between Boran customary rangeland management systems, who maintain a pastoral livelihood. The study will as well focus on conservation efforts in the use of existing grazing lands and water resources, mobility of people and livestock in normal or in periods of disaster. The study will further analyse formal governance on natural resource management and how this will be overcome to have a legal plural framework that will accommodate both traditional and formal governance

systems. The outcome is to have a holistic effective, relevant and reliable policy for sustainable management of range resource.

1.2 Statement of the Problem

The governance of natural resources poses serious risk in peaceful coexistence of the communities that rely on these resources for survival. Conflicts are the visible registers of underlying natural resources management practices as noted by (Wamuicho & Kihonge, 2017). Re-occurrence of conflicts points to the fact that there has not been long-term solution to ensure equal access to natural resources and proper management of natural resource conflict (Mwangi, 2012). Natural resource users lack coordinated systems for sustainable use of available resource in Isiolo County. Given the rapid population, growth and climate change in the context of devolution under a new Constitution of Kenya conflicts have persisted over natural resource use. Conflicts over natural resource access, use and management happen between and among large-scale farmers, small-scale farmers, farmers and ranchers, pastoralists and wildlife.

1.3 Objectives of the Study

The main objective of this study was to find how the existing and emerging natural resources management institutions are able to serve the requirements of pastoralists land use, identify mismatches and suggest suitable policy recommendations.

- To assess the status and evolution of traditional governance systems of Boran.
- To examine the emerging institutions on natural resource management for rangelands.
- To assess the link between the emerging formal institutions and the traditional pastoral governance and its implication on rangeland management.

1.3.1 Research Questions

The key question that guided this study was the following:

To what extents can pastoralist communities be supported to take advantage of upcoming trends and opportunities that enhance better management of natural resources and ecosystems services in Kenya's arid and Semi-Arid Lands (ASAL's)?

1.3.1.1 Specific Questions Include:

- What is the contribution of traditional institutions and formal system in natural resource governance and climate resilient in drylands?
- What is the role of hybrid systems that incorporate both values in common pool resource governance?
- What are the gaps and challenges in the existing formal and traditional knowledge on range resource management?

1.3 Significance of the Research

Pastoral community participation in decision making for natural resource governance is one of the pillars of sound rangeland management. It is acknowledged that Boran communities in north-eastern Kenya and south-eastern Ethiopia have their own experience and knowledge, which they have used for generations to manage the rangelands. Though studies exist on the customary range resources governance institutions limited attempt has been made to argue on the synergy between traditional systems and formal institutional in Kenya.

Studies in this area include Roba, (2014) for focused on the strength of traditional grazing management and formal endorsement of traditional rules and regulations, harnessing pastoralists' indigenous knowledge for rangeland management. Oba, (2012), focused on environmental governance and more specifically on landscape and ecosystem-based management. Lance Robinson et al, (2017), on the other hand focused on governance of rangelands on restoring and enhancing traditional pastoral governance for the sustainable management of rangelands

Therefore, the study was worthy project and timely to explore the gaps, assess the overlaps and challenges between customary and formal systems to build resilience in pastoralist

systems and contributes to existing literature on traditional mechanism of communal governance of rangeland systems.

CHAPTER 2: RELEVANT LITERATURE

2.0 Introduction

According to the African Natural Resource Center (ANRC), Africa's natural resource bases are the bedrock of the continent's economy and offer her opportunities for social and economic development. In 2012, natural resources accounted for 77% of total exports and 42% of government revenues (ANRC, 2016). The concept of governance is ubiquitous and has received a lot of attention from academia and practitioners from several disciplines e.g. political science, law, and sociology (Rhodes, 2007).

A synthesis of the literature shows that governance, put simply, is how decisions are arrived at to manage affairs of a society. Building on this simple definition and others from Eagles, (2009) Natural resource governance refers to "the norms, rules, institutions and practices that set limits and provide incentives for interaction between state, private sector and civil society to make and implement decisions towards developing their natural resources to meet their established goal(s) e.g. economic development, environmental protection, etc.

This dates back to the pre-1870s when traditional institutions dominated natural resources governance. During this era, traditional rulers and beliefs steered Natural resources governance. Chiefs, the traditional head of communities assumed land allocation powers and were the custodians of traditional values. A council of elders and fetish priests who provided technical and spiritual advice into how resources were governed ably aided them. Natural resources governance then was epitomized by their deep commitment to societal interest, which amounts to deep reverence of societal goods (Dore, 2001).

This era was characterized by various forms of conservation. Some areas – notably shrines and sacred groves that held religious and cultural values were strictly protected and remained in their natural state for a long period. Access to certain resources e.g. birds; primates, etc. were restricted because of their scarcity and/or specific value to specific groups, thus serving totemic purposes (Katerere, Hill & Moyo, 2001). Beliefs and taboos were the principal rules that shaped access and exclusion to natural resources.

Violation of such rules perceived to have catastrophic ramifications, including diseases outbreaks, droughts and famines (Resource Africa, 2002). As such, various sanctions, including payment for sacrifices, banishment and even death sentences instituted to deter people from breaching such provisions. Pre-colonial natural resources governance successfully integrated traditional and socio-cultural traits with environmental conservation needs. This gave it moral and political legitimacy at the local, making them stable and enduring (Kumeh, 2007). Though colonial natural resources governance tried to obliterate remnants of the precolonial era, it could not. Protected areas such as Matopos National Park and Mavhuradonha in Zimbabwe, Kalahari game reserve in Botswana and Mamili national park in South Africa remain testaments of the ingenuity of pre-colonial natural resources governance (Wolmer, 2003).

2.1 Natural resources as a Source of Livelihood to Pastoralist Communities

Pastoralism is not only way of life for millions of people in the Africa Horn, but also a livelihood and a production system practiced in the vast arid lands of the African continent. These vast arid lands of the continent cannot support any other sustained livelihood e.g. agriculture because of the extreme weather patterns and climate change (IIED, 2010), and as such only can support a resilient and mobile pastoralist to effectively utilize this land. Due to their concentration on a remote geographical location, their lands are generally perceived by national governments as ‘marginal with little economic potential (Oxfam, 2008).

Pastoralists maintain a complex web of rights over different resources within a landscape, sometimes asserting these rights infrequently. As a result, losing land and other rights is a common risk for pastoralists and communally managed lands without title are an easy target for land grabs and acquisitions. Land can be taken from pastoralists for many purposes, including cultivation on different scales, mining concessions, and hunting reserves and for nature conservation. Pastoralists can also annex land from other pastoralists through the process of privatization and fencing, with harmful consequences for the wider pastoral landscape and economy (IUCN, 2011b).

Pastoralist issues need to be included in planning, development processes by the government, and there is need for continued advocacy for pro-pastoralist policies. Some countries have confessed that despite good intentions they find it difficult to reach and target nomadic communities and develop suitable policies and development programs for them. In most cases, existing policies hardly incorporated local knowledge at the formulation phase and thus more often than not make ownership and implementation difficult (UNDP/DDC -2007). Pastoral culture relies heavily on livestock rearing which plays a very important role in terms of livelihood, social capital, and as an insurance against disaster (World Initiative for Sustainable Pastoralism, WISP, 2007).

As Waters – Bayer (1994: 9) observed, “Pastoralists make use of arid and semi-arid areas where climatic variability is large, meaning that the natural resources on which they depend are highly variable in space and time, also between years---”. Hence, as the range resources become scarce, competition is becoming stiffer and tensions are rising between states and between the communities sharing these common resources. In Africa, pastoralism takes up 66 per cent of the continent’s lands for pastoral production as it is considered to be the most efficient use of rangelands such as the Arid and Semiarid lands (ASALs) of Kenya (NRC, 2014; Idris, 2011).

The International Labor Organization Convention No. 169 on Indigenous and Tribal Peoples provides for the protection of the right to culture and property. More specifically, this Convention requires that the various governments ‘take steps as necessary to identify the lands which the peoples concerned traditionally occupy and to guarantee effective protection of their rights of ownership and possession. As such, a concerted effort is required to legitimate customary natural resource governance to build resilience and reduce the open access abuses of scarce resources.

This paradigm shift for natural resource governance affords the opportunity to embrace indigenous and local knowledge in natural resource governance. Myriad studies (Parlee & Berkes 2006; Diawuo & Issifu 2015; Kafalew et al. 2015; Tugume et al.2016) have shown the value of indigenous knowledge in the use, management and conservation of natural resources. Despite recent increases in use of indigenous knowledge in socio-economic

studies (Torri & Hermann 2011), inadequate attention has been given to these institutions in conservation policies (reviewed in Diawuo & Issifu 2015).

According to Levine and Pavanello (2012), policy makers at the national level have neglected aspects such as land rights. On conflicts among pastoralists, they argued that this is the results of attitudes and policies that discriminate against the pastoralists. They pointed out that for many policy maker view pastoralism as backward and that it should be addressed by sedentarization. Failure by government institutions to recognize the pastoralists' way of life is in itself a source of conflict. The consequences of this way of thinking towards pastoralists have been causing serious conflicts and tensions in pastoralist areas.

A study by Bond (2014) focused on drought-induced conflicts over grazing resources and their study-analyzed a number of factors that spark and aggravate conflicts in the ASALs areas of north-western Kenya. The research established a number of factors including completion among water users, persistent droughts, and lack of strong institutions to manage equitable water use, political differences and biased property rights over water governance. The study recommends the strengthening of institutions. Having progressive policies where local communities are included would help in solving inter-community conflicts.

2.2 Natural Resources and Conflicts

The arrangement tenure of water resources and other natural resources management are critical shaped by the relationship between the people and the natural world and among the people. The rights allocated to people in terms of management of the natural resources are critical to people livelihoods and influence the social relations and ecological functioning (Adger & Luttrell, 2000). Rural communities across the world continue to be dependent on water and other natural resources for livelihoods. Their subsistence activities depend on access to water, land, fisheries, pastures, forests and without these natural resources, they would remain poverty stricken for many years. This call for livelihood diversity among poor population is critical especially for those dependent on natural resources to hedge against economic and natural conditions fluctuations.

On the other hand, diversification of livelihood activities relies on access to various types of resources. The increased overlapping interest in water resource makes communities to fight over power to control which create conflicts.

The regions further experience water scarcity attributed to illegal and over abstraction of water for irrigation activities and this has been blamed for the reduction of water flows downstream. The presence of large-scale farming investors undertaking horticulture or other high water demanding agricultural activities has resulted in the water scarcity in the area. Over abstraction started due to the increase in irrigated agriculture and the booming of horticultural business. The study by Ngigi (2006) showed that in Kenya over 80% of the population has inadequate water resources and that Ewaso Ngiro basin falls under the category of the water stressed basins facing the challenges of water scarcity.

The main challenge that faces Kenya is increasing the water supply in dry areas, which include proper utilization of the limited available water resources. Lack of adequate water has been cited as one of the main challenges that hinder areas in ASALs from achieving high economic development. Because of water scarcity areas such as Laikipia County continue to experience persistent conflicts over water sources as various water user seek to access and use the existing water supply (Ngigi, 2006). This region has pastoralists, agropastoralists and large-scale farmers, which are, water dependent economic activities competing for the existing water sources.

The study by Gichuki (2002) highlighted the factors that have resulted in the increase of demand for fresh water resources in Kenya's ASALs regions. Among these reasons were increase in water intensive economic activities because of increased population and the need for better standards of living with subsequent water scarcity worsening during the dry seasons both at local and regional level (Gichuki, 2002).

According to Gichuki (2002) water scarcity is attributed to reduced precipitation, increase in irrigated farming and poor water management practices, degradation of the water towers, changing land use systems. In addition, urbanization and industrialization lead to over extraction of water resources and poor water storage systems. Water scarcity and conflicts

are inseparable because of the link between the water resources and the livelihood activities attached therefore, lack of adequate water leads to high competition and resultant conflict over the use of the available water sources. Other social problems such as social inequity, marginalization and lack of livelihood opportunities that do not depend on water and land further aggravate the conflicts over water resources (Gichuki, 2002).

Sustainable natural resource governance requires a model based on mutual bargaining agreements, which are fostered by the community members themselves. This model has wider applicability in security, management and in many fields and it is argued to have long lasting solutions to conflicts (Lewicki & Tomlinson, 2003). Many scholars argue that trust is significant in water conflict resolution since it enhances cooperation, information sharing and provision of solution to imminent problems. With trust, water users assess the possible behaviors of other parties in various situations influenced by the rewards for being trustworthy which deters against untrustworthy behaviors (Lewicki & Tomlinson, 2003). The existence of rewards and punishment act as control to trustors to ensure the trustees' behaviours remain consistent, the individuals leverage on the benefits of staying in the relations with trustees against costs associated with cheating on the relations which enhances the cooperation in management of natural resources.

There has been need for many Nations to devolve the management of the natural resources over the last three decades. Studies have confirmed the use of trust in increasing the likelihood of institutions in being robust and supportive of social ecological systems in accordance to the studies undertaken by Klain *et al.*, (2014.) According to Ostrom (2003), if the institutions mandated to manage natural resources are not effective enough to a good scale, natural resources face overexploitation by ever-increasing population and consumption, which has been escalated by adoption of modern technologies, which are currently at the highest level.

In Kenya the devolution of the water resources is anchored through the Kenyan Water Act of 2002 that defines one autonomous public agency, the Water Resource Management Authority (WRMA), (amended Water Management Authority) which is mandated to

regulate the management of water resources. The other authority; Water Services Regulatory Board (WSRB); aimed at regulating the provision of water and sewerage services. WSRB was established to mandate the licensing of all water and sewerage services that provide more than 20 households (Mumma 2007). WMA is mandated to allocate water use permit and implement strategy in management of water catchment areas through policy formulation and enforcement (Watson, 2007). The WMA involves local stakeholders through registered WRUAs to enable the participation of the local community members at the ground level. WRUA has been tasked with the responsibility of dealing with the water resources at the grass root level.

With the rampant water resources conflicts, large Ewaso Nyiro catchment region formed a WUA, which meant to solve the conflicts related to the water. Water Users Association can be traced back to 1990s as strategy used by Water Awareness Creation Campaign, which operated, supported by Ministry of water development and Laikipia research programme (Kiteme & Gikonyo, 2002). Some of the established WRUAs in Ewaso Nyiro Catchment include Ngare Nything, Ngushishi, Upper Naru-Moru, Likii River, Burguret River and Nanyuki River. The successfulness of these WUAs has not been high. This can be attributed to lack of clear connection between different WUAs, which on the other side encouraged silo water management systems, which ultimately led to over utilization as argued in the game theory.

Right over use and ownership of water vested with the state, under the relevant institutions as discussed elsewhere in these proceedings. Consequently, in all cases of diversions, abstraction, obstruction, storage or use of any waters from any body of water, an application for a use or user permit must be made and obtained (Kiteme & Wiesmann, 2000). However, the perception by the community on user rights, which is based on the belief that their right over water is God given, make it difficult to enforce these requirements. Equally important is the question of equity in the access to and use of the resources: In terms of allocation of water resources and the distribution of benefits derived from water use (Gichuki, 2002), which leads to the question of whom or what use deserves the water most.

2.2 Theoretical Framework on Natural Resources Governance

The application of game theory in management of the natural resource originates from the fact that the problem is caused by independence between various stakeholders and further because of connected actions and strategies. On one side, the outcomes of the decision taken by different agents are related while decision makers on the other are lack knowledge of the decisions taken by other agents. The opportunity of benefitting from free riding makes the management of the commons very challenging both at local and global levels. To manage such public goods there is a need for collective actions from all the key players.

According to Game theory, lack of cooperation leads to every individual to maximize benefits without considering other users as they too maximize their individual benefits (Dinar *et al* 2008). Therefore, according to game theory lack of cooperation is likely to result to over exploitation of the natural resources hence the prisoner's dilemmas, the so-called Tragedy of the Commons (Axelrod, 1984; Hardin 1968). The use of cooperation actions leads to creation of rules and regulations with binding penalties that are actively enforced by all stakeholders.

2.2.1 Elinor Ostrom's 8 Principles for Managing a Commons

According to Ostrom (2003), if the institutions mandated to manage natural resources are not effective enough to a good scale, natural resources face over exploitation by ever-increasing population and consumption, which has been escalated by adoption of modern technologies, which are currently at the highest level. Ostrom (2003) argues that a more effective way of managing the common must bring together all the users in a long-lasting and cooperative manner. From her intensive research work in some parts of the world; Kenya, Switzerland, Guetemala, Nepal, Turkey and Los Angeles on "governing the commons" she documented many situations where The Tragedy of the Commons Theory is untenable. Ostrom (2003) noted the numerous occasions in which common pool resources are managed successfully with neither centralized governmental control nor privatization as theorized by Hardin (1968).

Instead, she goes on to give 8 principles for how commons can be governed sustainably and equitably in a community (Ostrom 2003). According to Ostrom, effective commons governance is easier to achieve when these rules are observed. The rules must define boundaries for all the groups to exclude potential beneficiaries who may not be willing to cooperate. The rule governing use of the commons must be integrated with local need and conditions because resources vary in type such as water or fishing and the core amounts to be preserved while the fringe benefits are exploited sustainably need to be determined and whoever is affected by the rules should be invited to modify them.

External authorities must respect the rule making rights of all the stakeholders, while a system must be developed and implemented by the community to monitor behaviour of members. Another principle recommends for graduated sanctions for rules violators. Disputes resolution must be done in a low cost manner and should be accessible to all the stakeholders and finally responsibility for managing the commons should be done in an interconnected manner from the lowest level to the highest level (Ostrom 2003).

There exists therefore, plenty of governance tools and methods to modify and combine in an attempt to understand and apply to solutions to water issues. In major cases the role of community in management of environmental issues is usually not taken seriously or ignored both at global and national level. The approach in management of natural resources should include multiplicity of approach since no single type of management has succeeded as illustrated by deterioration of forest in multiple countries across the world (Ostrom, 2003).

Community must overcome collective action dilemmas to govern the commons. Other factors necessary to ensure success of Ostrom' 8 principles of sustaining the commons include size of the groups (Agrawal, 2000; Agrawal and Goyal, 2001), homogeneity of the groups (Blumenthal & Jannink, 2000), leadership and level of organisation, relative autonomy. Community needs external actors to intervene to kick start collective action to avoid the tragedy of the commons.

CHAPTER 3: REASEARCH METHODOLOGY

3.0 Introduction

This chapter describes the research site, study population and unit of analysis, sample and sampling procedure, data collection methods and data processing and analysis procedures.

3.1 Research Site

The study site is Isiolo County, a region in northern Kenya, which covers three sub-counties namely; Isiolo, Merti and Garba Tula, inhabited by the Boran community who traverse the vast region in seasonal migrations as they seek sufficient pasture and water for their livestock. Livelihoods here depend on these two resources (water and pasture), and their approach to governance is a consequence of culturally evolved ecological knowledge system (Torri & Hermann 2011). Such ecological knowledge systems have been shown to be effective in the conservation of bio cultural diversity (Molnár *et. al.* 2015) and exist as a knowledge-practice beliefs complex (Torri & Hermann 2011). The region experience both wet season and dry season and therefore has drought reserve part, set aside by rules traditionally governed by the Deedha Council. A drought reserve is a critical area but unfortunately not being followed or compromised by invasion from the neighbouring communities. In this regard cross-county resource management collaboration is key to enhance sustainable rangelands.

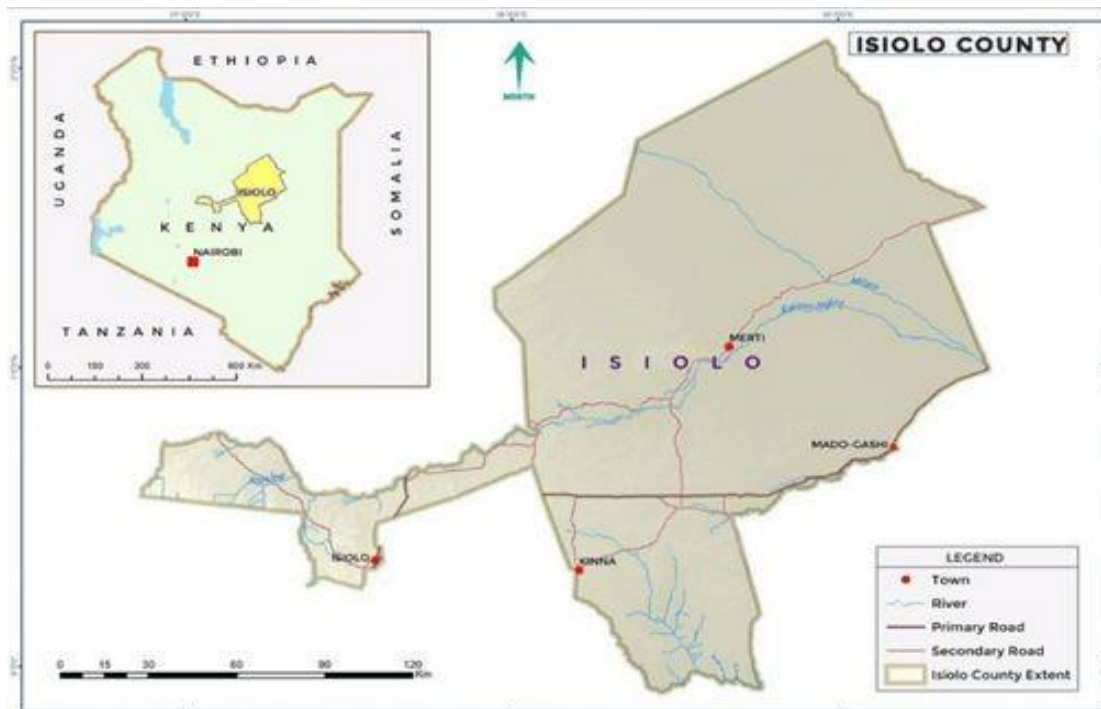


Figure 1. Map Showing Location of Isiolo County

Source: Google map

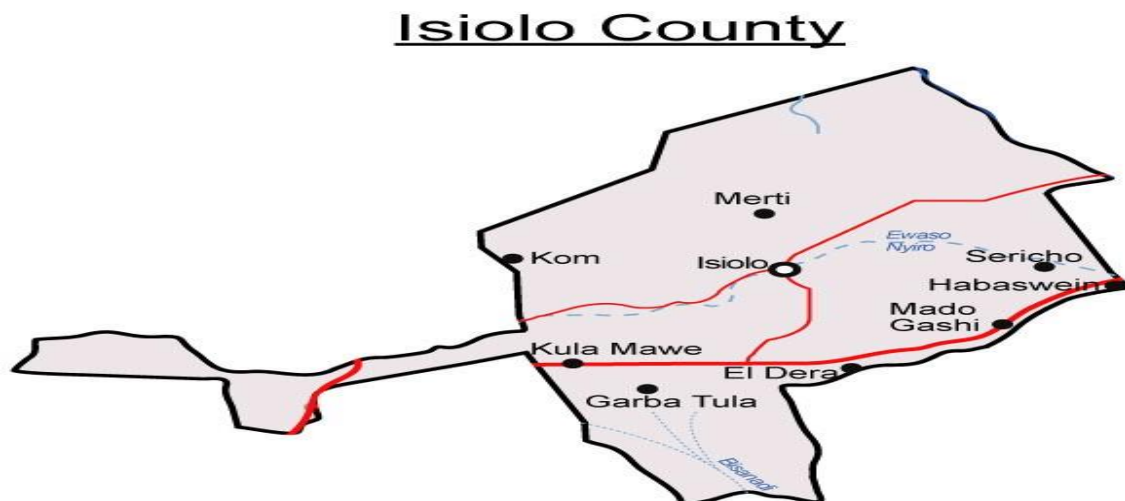


Figure 2. Map showing Study area.

Source: Google map

3.2 Research Design

The study used a descriptive research design. A descriptive research design is used when the variables are known, but the relationships between the variables are not clear (Levy & Ellis, 2011). The design allowed for an investigation of the contribution of traditional institutions and formal system, the role of hybrid systems and challenges in natural resource governance and climate resilient in Isiolo County. The design allows the researcher to interpret connections between the traditional systems and sustainability and analyze the main challenges that affect natural resource governance and possible coping mechanisms.

This qualitative study makes extensive use of primary data. The different stakeholder groups were involved to obtain answers to the research questions as described. Primary data was collected using tools such as questionnaires, which was developed to generate information about the three main objectives through focus group discussion and interviews of key stakeholders composed of both men and women. The supreme Boran governance structure was a relevant part of the in-depth interviews and the surveys.

3.3 Study Population and Sample Population

Qualitative samples are not meant to represent large populations, but rather “purposeful samples of articulate respondents are used because they can provide important information” (Sale, Lohfeld, & Brazil, 2002:45). Secondary data was collected from available literature on the Boran pastoralists in northern Kenya and southern Ethiopia, actors and their roles, and the institutional settings and changes of pastoralism. The population size of Isiolo is 143,294 as per population census, 2009). They mainly practice pastoralism systems. The study focused on the Boran community who practice traditional systems of natural resource governance. The sample size was 60 respondents both men and women.

3.4 Data Analysis

Statistical Package Social Sciences was used for statistical analysis and the emerging themes were presented as descriptions supported by excerpts based on the objectives of the study. The reporting of qualitative data is done in a rich, thick emphatic and somewhat

informal language (Brannen, 2007; Johnson & Onwuegbuzie, 2004). This helps to preserve the views of the participants while at the same time grounding the themes in literature. Besides the above presentations, verbatim quotes will be used to amplify the voices of the informants where necessary.

CHAPTER 4: RESULTS AND DISCUSSION

4.0 Introduction

This section presents the results based on the specific objectives. The results are presented in three main sections; the first section presents the findings concerning the existing traditional governance systems of natural resources practiced by the community within the study area and their evolution. The second section presents the findings on the emerging institutions for natural resource management in rangelands, while the final section presents the results on the existing formal institutional arrangements in Isiolo. The study targeted a total of 60 respondents however; only 40 respondents were reached and interviewed which represented a response rate of 66.7% which was considered adequate for this study. This was attributed to migratory nature of the selected respondents and some had very busy schedules.

4.1 Existing and Evolution of Traditional Governance Systems of Boran

The first objective of the study was to identify the existing traditional governance systems used by the target communities in management of the natural resources in Isiolo County, Kenya and to describe their evolution. The respondents were asked to indicate some of the indigenous authorities and enforcement structures that were used in natural resources governance. The traditional authorities mentioned by the respondents are as shown in Figure 2 below.

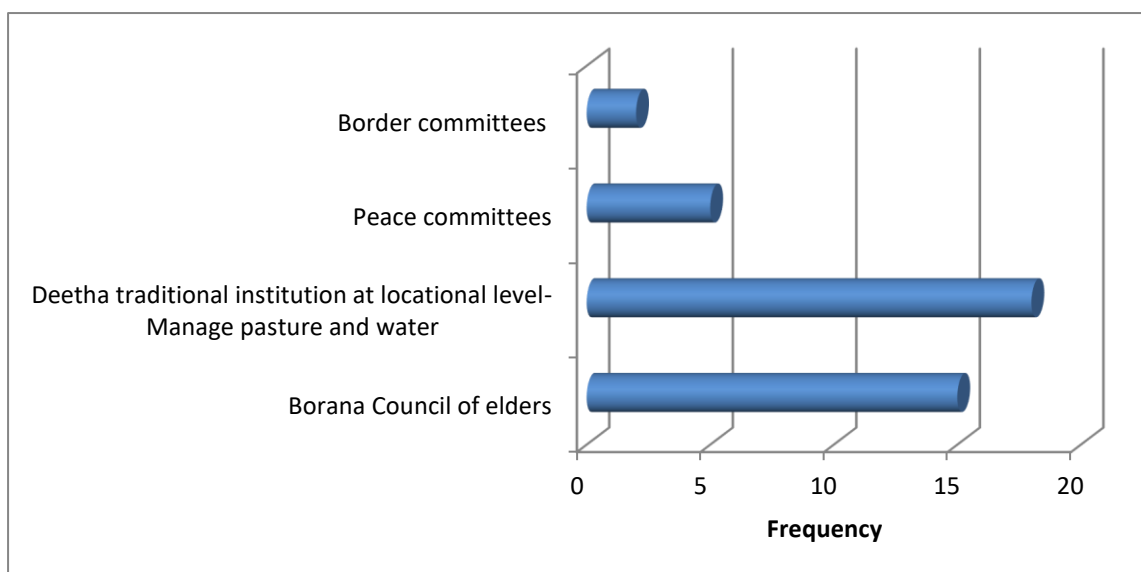


Figure 2: Traditional Governance Systems Identified

The finding showed that the Deedha traditional institution at the local level was the most mentioned traditional governance systems of natural resources followed by the Borana Council of elders and other include peace and border committees. Deedha is the highest unit in resource management among the pastoralists' communities. It is made of elders from different Rangeland Users Associations (RUAs) and Water users Associations (WUAs). Historically, traditional rangeland planning was based upon the specific conditions, and organized around community units, beginning with households (*Olla*), to villages (*Ardha*), and then to a cluster of villages (*Dedha*). Resource planning started at the Olla level, which was then coordinated with the higher unit for coherence and consistency, allowing pastoral communities to optimize the use of resources (Tari D. *et.al.*, 2015)

These institutions received capacity building training and support and were assisted in operationalizing some of the governance strategies agreed in the rangeland plan. The finding confirmed that traditional authorities existed and that these systems managed the use of natural resources within Pastoralist communities in Isiolo County. However, one respondent noted that.

“The indigenous institutions have eroded and have been replace with formal institutions that have the mandate in enforcing laws”

Another key respondent highlighted that,

“The rangeland resources are owned communally, and each individual has perpetual access rights. The resources are managed under Deedha stewardship where decision on use and management of the resources is embodied in the Deedha council. All resources such as grazing area, water points, salt licks, forest, wildlife and other biodiversity are management under Deedha rules and regulation. These rules and regulation are consensual and passed at general assembly and it applies to all rangeland users who are ethnic Borana. The Deedha elder enforces these rules and regulation and individuals who break these laws are penalized according to the customary penal codes. Deedha elders are responsible for cross-border engagement with neighbouring communities on matters of resource use and mitigation of conflict. Under negotiated access and reciprocated user rights, other ethnic tribe or communities from neighbouring counties will have access to resources managed under Deedha system. In the eyes of the locals the authority of Deedha institution is supreme in Wasoland”

4.1.1 Role of traditional Structures in governance and the establishment of climate resilient mechanisms

The study further probed the respondent how these traditional structures helped in resource governance and in the establishment of climate resilient communities. The roles mentioned by the respondents are as shown in figure 3 below.

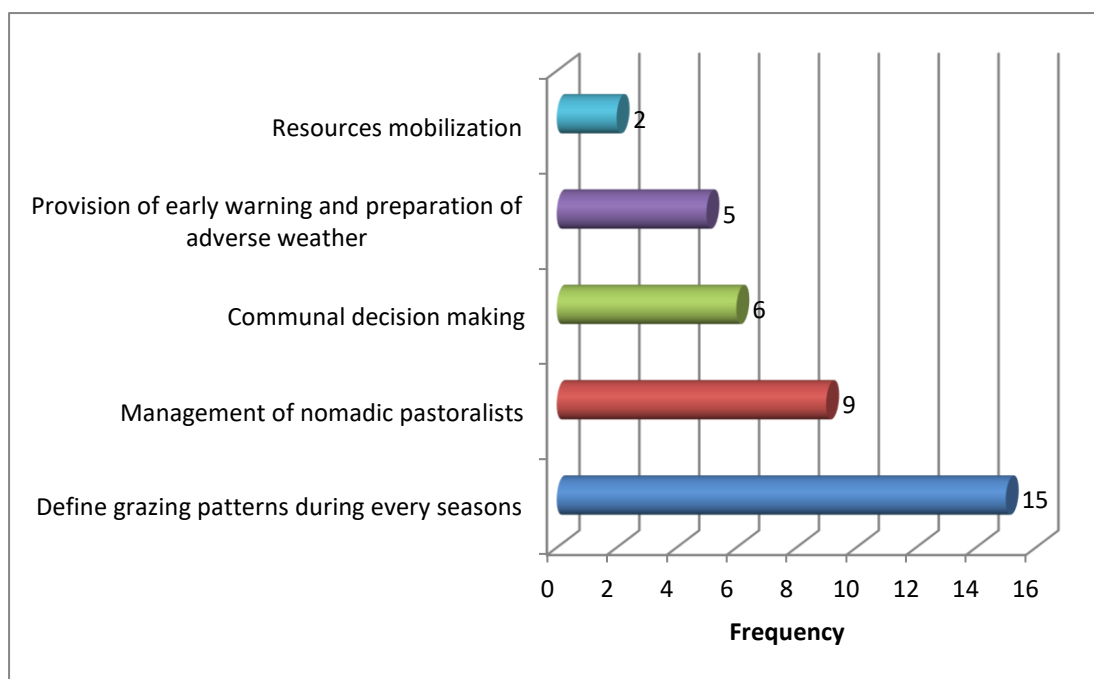


Figure 3: Role of traditional Structures in governance and establishment of climate resilient mechanism

The findings presented in Figure 3 shows that traditional structures played a significant role in definition of the grazing patterns during every season (mentioned by 15 respondents), management of the nomadic pastoralists and overseeing communal decision-making. Other roles mentioned by the respondent included provision of early warning and resources mobilization to help the affected members of the communities. Some of the role of traditional Deedha systems mentioned from FDGs include ensuring equal access and use of natural resources and is the core to the management of biodiversity. The Deedha systems ensure there is minimal loss of livestock during the drought period. It is a well-planned natural resource use system, which ensures a viable life cycle during drought and rainy seasons for pastoralist's communities and advocate for community ownership and governance of rangeland.

This study further indicates that there exist informal mechanisms and institutions for governance of natural resources within pastoralist communities in Isiolo County in Kenya. One of the Key informants interviewed noted that;

“It controls open access to resources which causes degradation and ultimately weakening community resilience during time of stress. Under the Deedha

stewardship the ownership of natural resource is inculcated which improves management of the resources. Using the traditional knowledge and skills Deedha allows division of rangeland into 3 distinct grazing regime of wet season grazing area, dry season grazing area and drought reserves. These allows sustainable utilization of rangeland resources and drought refugia provide pasture and water allowing the community to bounce back during droughts”

4.1.2 How Traditional Governance Evolved

The respondents were further asked to indicate some of the ways the traditional governance institutions (or Deedha) evolved following changes (socio-economic, political and ecological) in pastoralists' lives and livelihoods over time. The study sought to find out how the traditional institution evolved over time to avoid being eroded by the formal institutions. Some of the evolution mechanism mentioned by the interviewees includes;

- Continuous training of pastoralists
- Linking and networking
- Platforms and forums to share the new challenges and opportunities that exist
- They continuously revise provisions and customs that manage use of resources over time

One of the respondents mentioned that;

“Deedha systems were the single most important natural resource management systems before the challenges of climate change, politics and economy threatened it. It is resilient and sustainable, easily adopted locally”

Another respondent highlighted that

“Deedha is not an institution that is created to serve for specific timelines but its intrinsic part of everyday life of Borana community. The values and vision of Deedha is entrenched and oriented to the Borana Gada system which started way back in 14th century. It is regarded as way of life and will be bequeathed from one generation to another. The skills, philosophies, rules, customs and practice of managing natural resources was developed over the years through long term interaction with natural environment. These lived experiences and trial and error methods helped them to develop inherent understating of their local ecology which helps them to respond socio-economic changes and shift in weather and climate regime”

Other respondents indicated that traditional institutions have been unable to cope with the changes in socio-economic, political, ecological, and faced threats of being distinct. For

instance, they mentioned the following as hindrances to evolution of the traditional institutions.

“Traditional systems coping mechanism is poor due to climate variations, sophisticated systems, political uncertainty”

“They are overtaken by innovation and technology”

“Unable to cope with changes in economic, political and ecological conditions”

“Insufficient capacity building and lack experts’ advisory services”

“The power of Deedha System has been diluted over time was powerful in the past”

Some of the transformation Deedha governance council has undergone overtime as mentioned by the respondent includes;

- It is formally recognized by county government as a means of handling natural resources governance issues
- It has transformed to a quasi-government organ in natural resource governance
- Training and capacity development and strong decision making
- It has become subject to democratic elections and communal scrutiny

4.1.3 Intercommunity binding statutes for natural resource utilization

The respondents were asked whether there were any binding statutes with neighboring communities (Samburu/Somali) with regard to resource use and land management. The results are presented in the Figure 4 shown below.

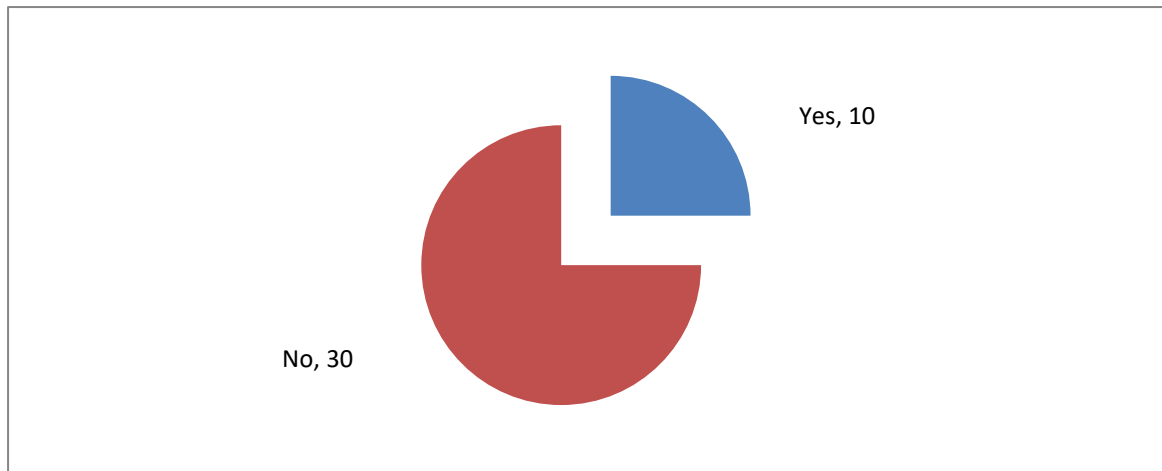


Figure 4: Existence of Intercommunity binding statutes for natural resource utilization

The results show that majority (30) of the interviewed respondents disagreed on the existence of the any binding statutes with neighboring communities (Samburu/Somali) with regard to resource use and land management. One of the respondents who disagreed indicated that;

“There are no binding statutes in place in terms of public investment in boreholes, water pan and pasture utilization”

However, among the respondents who agreed following statutes were cited: Madogashe declaration series revision, Shaba declaration Deedha resolutions and The Murti DeedhaThe decree of the Deedha, a council of elders as existing binding statutes with neighboring communities (Samburu/Somali) with regard to resource use and land management. The finding implied that there were existing binding statutes, which were not being observed by the communities hence they were not well known among the majority of the communities’ members. This declaration could also have been subdued by formal legislation initiated by national and county government in the management of the natural resources within the study area.

One of the respondents mentioned that’

“This was so because the ownership of natural resource is hotly contested among different pastoral factions causing bloody conflict. This gave provincial administration leeway to usurp responsibility of managing natural resources from locals and they use state law and other consensual agreement such as Madogashe declaration to control grazing and resolve conflict. With advent of devolution, the

governance architecture was significantly altered leading to creation and operationalization of devolved government. Functions as management of rangelands and rangelands resources are devolved giving the county government legitimacy to create policy and institutional arrangement for governance of natural resource”

4.1.4 Whether Communities Are Supportive Of the Deedha Systems

The study sought to establish from the respondents whether the communities were supportive of the traditional structures and institutions of the natural resources management. The findings presented in Figure 5 below shows that 30 out of the 40 respondent interviewed agreed that all the communities were supportive of the Deedha Systems of natural resource governance. Only 10 of the respondents indicated that not all the communities supported the Deedha Systems. These results indicated that traditional institutions of natural resources had approval from the majority of respondents.

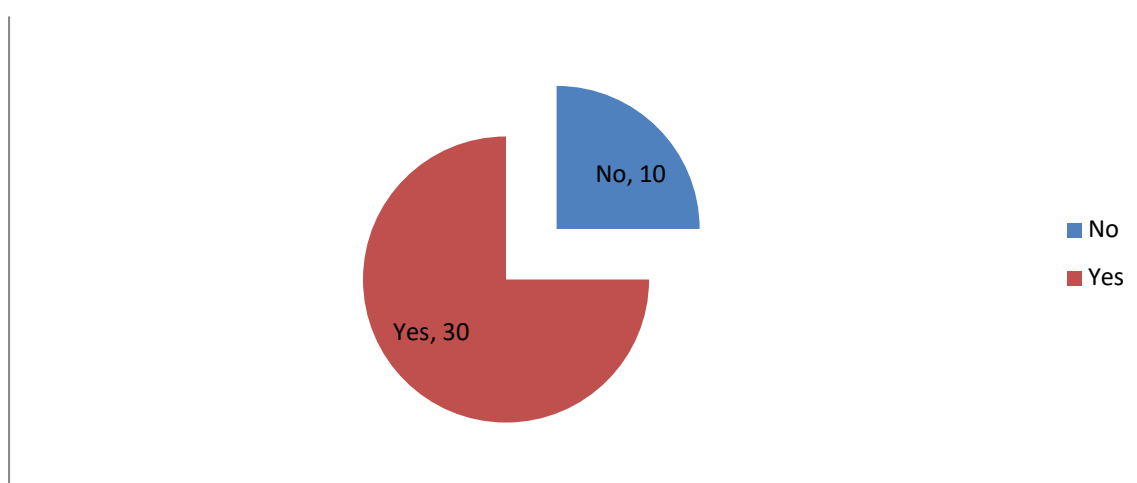


Figure 5: Whether Communities Are Supportive Of Deedha Systems

4.1.5 How the capacities and authorities of the traditional systems are weakened and who is responsible

The study sought to find out from the respondent’s ways in which the capacity and authorities of the traditional institutions are weakened and the parties that were responsible for the weakening of the traditional institution involved in the governance of the natural

resources within the pastoralist communities in Isiolo County Kenya. The common ways that destroyed the traditional structures as mentioned by the respondents include;

- County government- state officials make arbitrary decisions on Traditional institutions (Deedha)
- Conversationalist and land grabbers
- Political interferences
- Livestock traders and commercialization of Deedha
- Corruption among the committees and tokenism

The findings therefore implied that formalization of the governance of the natural resources was responsible for destruction of the traditional structures and institutions involved in natural resources management.

4.1.6 Main causes of conflict and Ways of Moderating Conflicts

The respondents were asked to highlight some of the causes of natural resources related conflicts and ways adopted to mitigate and moderate the conflicts. The results are presented in Figure 6 below.

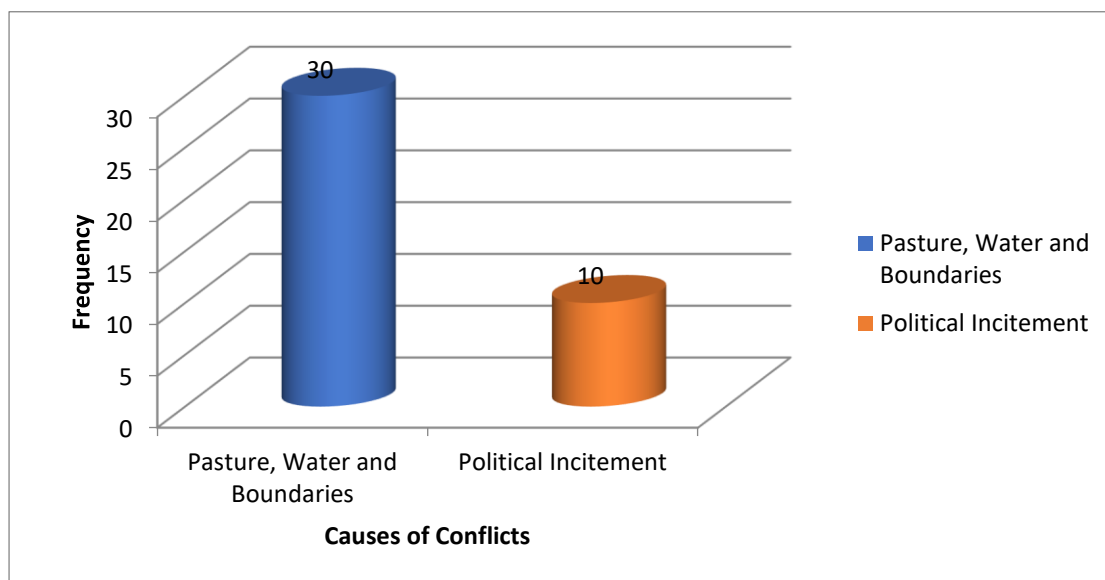


Figure 6: Main sources of conflicts

The main sources of conflict mentioned by the respondents were pastures, water and boundaries (30) followed by political incitement and fights (10). The findings show that management of pastures, water and boundaries was the largest cause of conflicts among the pastoralist communities in Isiolo County. In order to moderate these conflicts, the following methods have been applied;

- Provision of arms in equitable way
- Peace building through traditional structures and systems
- Use of inclusive approach where peace building and conflict resolution techniques are employed
- Strengthening Deedha Patrols
- Deedha surveillance
- Negotiating shared utilization of natural resources
- Inter-tribal disputes
- Boundary disputes settlement
- Controls illicit arms

This study result demonstrates that traditional structures and institutions have been involved extensively in moderating natural resource conflicts among the pastoralist communities in Isiolo County. The results of the study established the existence of traditional structures and institutions in governance of natural resources within the pastoralist communities in Isiolo County. These institutions have evolved to cope with changing dynamics brought about by formalization of the natural resource governance. According to the findings of this study, the traditional institutions continue to play a significant role for natural resource governance especially in conflict moderation and mitigation since they are more trusted by the majority of the communities than the formal institutions.

4.2 Emerging Institutions on Natural Resource Management In Rangeland

The second objective of the study focused on examining emerging institutions for natural resource management in rangelands. The study asked the respondent to highlight some of the existing formal institutional arrangements within the natural resource governance realm in Isiolo. The most common formal institutions mentioned by the respondents include;

- County government
- WRUAs
- Forest User Associations Rangeland Committees
- National drought Management Authority
- Northern Rangeland Trust
- Merti Integrated Development plan

These findings established that besides the informal institutions, formal institutions also existed in governance of natural resources. One of the informants interviewed noted that;

“For decades the management of natural resources in ASAL was tightly guarded affair by the provincial administration (chiefs, DO and DC. This was so because the ownership of natural resource is contested among different pastoral faction causing bloody conflict. This gave provincial administration leeway to usurp responsibility of managing natural resources from locals and they use state law and other consensual agreement such as Madogashe declaration to control grazing and resolve conflict. With advent of devolution, the governance architecture was significantly altered leading to creation and operationalization of devolved government. Functions as management of rangelands and rangelands resources are devolved giving the county government legitimacy to create policy and institutional arrangement for governance of natural resource. So far, the county has developed Isiolo rangeland policy with aim of improved rangeland resources use and to increase resilience to climate change. The COK also allows for coordination collaboration and partnership between national and county government and as such they can set joint committee/institutions/effort to achieve specific objectives. This arrangement allows the county administration, provincial administration, KFS and Deedha to work closely in controlling deforestation activity such as charcoal trade”

4.2.1 Impact of Formal Institution on resource use rights

The study further probed the respondents on the impacts the formal institutions have had on the resource utilization rights among the communities. The respondents mentioned the following impacts:

- Ensure equal access and management to natural resource by all community members
- Enforce equitable use of natural resources
- They fill in loose ends existing in the informal systems
- They provide early warning for imminent drought situations and advice on prudent resource utilization
- Violates Deedha land use plan
- Fairly well by providing water during droughts and negotiating for pasture with our neighbours

Specifically, a key respondent highlighted that;

“Before proliferation of state law in Northern Kenya (pre and peri independence) the land and land-based resources were owned communally, and the management of these resources are under the common resource tenure. Individuals and clans have and perpetual rights to access, own and utilize these resources. Postindependence era coincided with creation of powerful state organs/ institutions which among other functions dictate policies for access and management of natural resources. This affects the ownership and utilization of resources by indigenous people which affect their livelihood and lifestyle especially when the locals are excluded from decision making process”

Another respondent noted that;

“Formal institutions challenged the authority of traditional management systems and undermined the traditional systems rather than improving and complimenting the traditional governance systems”

According to the respondents, besides the good intention of the formal institutions, they also eroded the influence of informal and most trusted institutions used by the communities in governance of the natural resources. According to the respondents, formal institutions had both positives and negative impacts and the negative part is a lack of recognition of the informal structures.

4.2.2 Ways Formal Institutions have impacted Rangeland Management

The study further sought to establish from the respondents some of the ways the formal institutions had affected the governance of the natural resources within the study area.

Some of the mentioned ways include;

- Providing alternative forms of management
- Increase in accountability
- They have led to poor management of the natural resources due to rampant corruption.

However, a section of the respondents noted that formal institution had very little impact on informal institution and considered formal institution as being disjointed and poorly coordinated. One of the respondents noted that;

“Their impact has been minimal since with existence of traditional systems, it had been a challenge for them to thrive as their legitimacy is always questioned”

4.2.3 Existing arrangements both in policy and legislation that reinforce the governance of these institutions

The respondents asked whether there were existing policies and laws that reinforced the governance of formal institutions. The results shown in Figure 6 indicate that 27 of the respondents disagreed while only 13 agreed. The findings established that some of the formal institutions that governed the natural resources in the Isiolo County were not well established under the existing policies and legal framework. The finding implied that some formal institutions involved in governance of natural resources lack a proper mandate, which could explain why they interfered with the mandate of the informal institutions in the case of overlapping mandate.

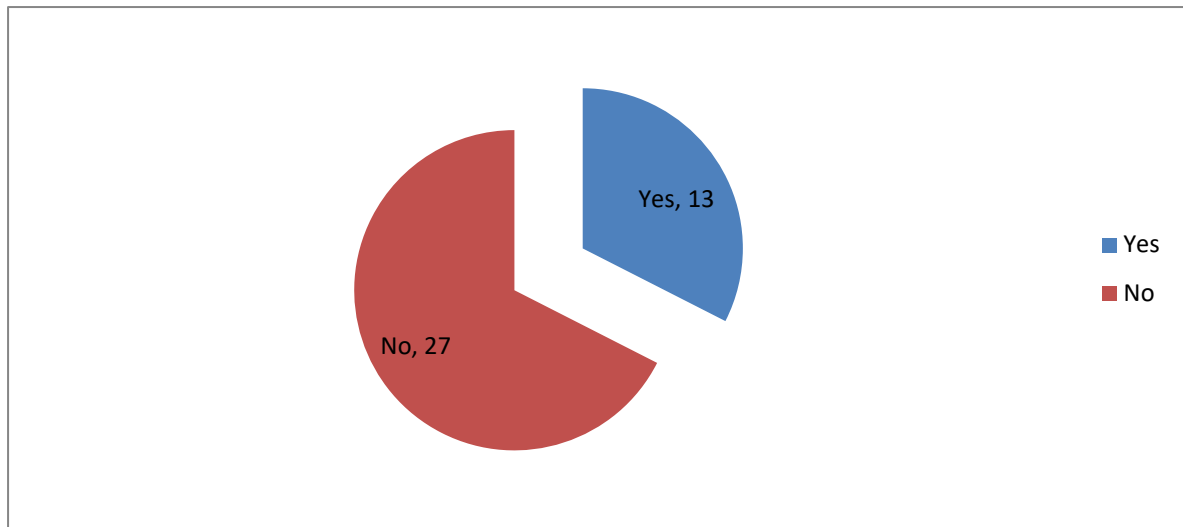


Figure 7: Existence of policy and legislation that reinforce the governance of these institutions

One of the respondents noted

“No policy at the moment but there are initiatives to adopt some policies”

While another highlighted that

“County government has rangeland management sections which work on rangeland planning and investment. Government policies and legislation guides their work in rangelands. NGOS work through communities and don’t have supporting legal systems”

4.2.4 Role of Devolution in Natural Resources Management

The study further sought to establish the role of devolved government systems in natural resources governance. The study asked the respondents whether devolution was an enabler or constraint for the effective governance in line with indigenous people’s values, norms, etiquette and vision for future. The results presented in Figure 6 show that 25 of the respondents agreed that devolution was an enabler for effective natural resource governance while 15 disagreed.

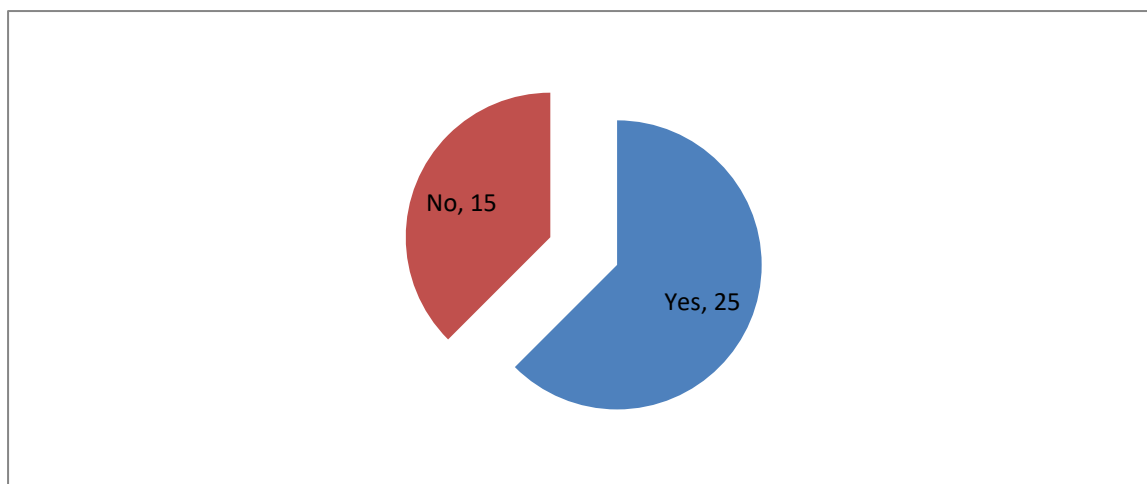


Figure 8: Existence of policy and legislation that reinforce the governance of these institutions

Some of the responses gathered from the FGDs include

Respondent 1: “Devolution is an enabler because leaders can work directly with the people at the ground level to devise mechanism of handling natural resources utilization challenges”

Respondent 2: “Due to devolution pastoralist are now recognized and needs are handled by devolved government”

Respondent 3: “The county government better understands and can fit in the informal institutions than national government”

Respondent 4: “Yes “if well managed. Government is brought close to us in an automatic enabler of the formalization of indigenous systems”

One of the interviewed respondents mentioned that;

“Devolution is both an enabler and constraint for community based natural resource governance. The county government act has given legitimacy, authority and convening powers to coordinate functions and service delivery at county. Development of natural resource governance plans, policies and legislation requires context specific approach that responds to local priorities and needs, and county government are best place to understand and respond to local diversity. Such actions require coordination among actors and county government have the legitimacy and convening powers to coordinate, co-finance, and engage with all stakeholders at local, sub-national and national levels”

Another key respondent noted that;

“Devolution provides a readymade framework for governance of natural resource both at sub-national and communities level. Consistent with devolution polices, local people have inherent knowledge, experience and institutions for management of risk associated with climate variability and extreme events thus in government led adaption planning local perspectives and knowledge’s need to be recognized and integrated in formal planning systems. Community led approach are likely to have a higher pertinence to meet local needs leading to greater sustainability and ownership. However when planning and development of policies for resource governance as well as building community is decided at boardroom meeting without involving local institutions, without considering local perspective and circumstances such polices will be ineffective to serve its purpose and it will reinforce structural inequality, poverty, resource degradation and ultimately undermines community resilience to climate change”

4.3 Link between Emerging Formal Institutions and Traditional Pastoral

Governance and Its Implication on Rangeland Management

The final objective of the study was to assess the link between the emerging formal institutions and the traditional pastoral governance and its implication on rangeland management. The study sought to establish how informal institutions and formal institutions coexisted to enhance effective natural resources governance. The study findings show that the majority of the respondents agreed there was a link between informal and formal institutions that were involved in natural resources governance among the pastoralist communities in Isiolo County.

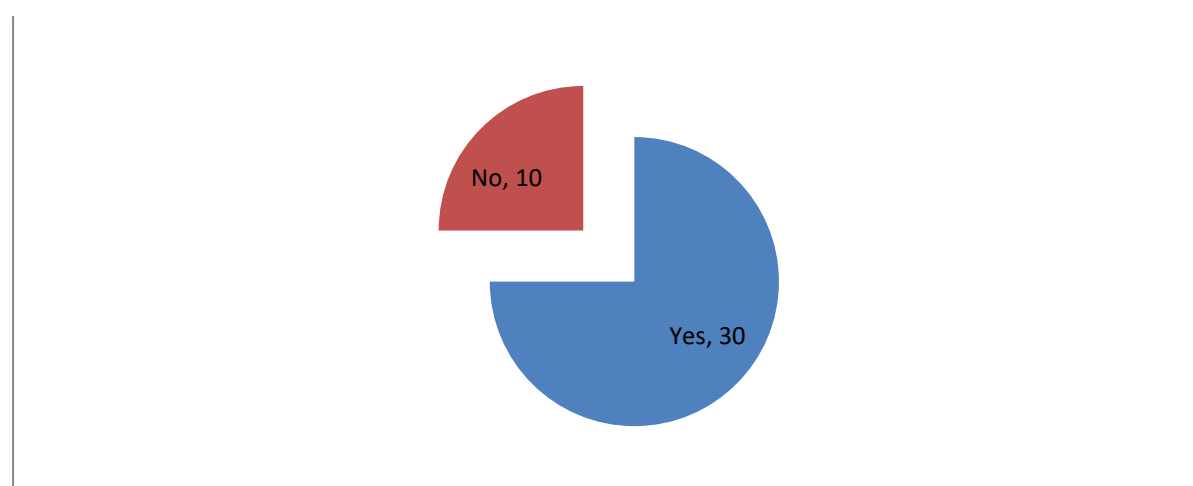


Figure 9: Existence of Link between traditional and formal institutions

Links mentioned by the respondents that existed between traditional and formal institutions include;

- Formal institutions are fundamental hybrid systems of traditional systems
- Both systems are focused on service delivery in terms of natural resources management
- “Yes, the formal systems are only complementary of the traditional systems”
- The two systems have a common vision, ideas of involvement of the communities in decision making
- Traditional systems engage with formal institutions to manage conflicts

4.3.1 Whether the link has improved natural resource management

The results in Figure 10 show that majority of the respondents agreed that link between informal and formal institutions and structures used for governance of natural resources improved management of natural resources. The finding established that harmony that existed between informal and formal institutions of natural resources management was crucial.

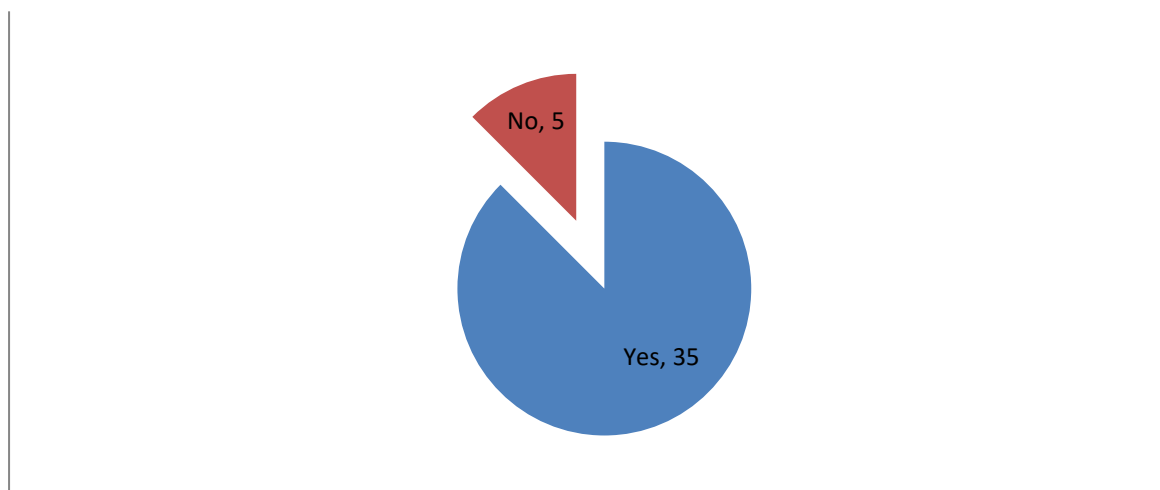


Figure 10: Whether the link has helped in natural resource management

One of the respondents interviewed noted that;

“Yes. If well-tailored can lead to a win-win situation, both ensure response to natural resources management?”

Another said, “Yes- but it is not consistent and conspicuous. You can find cooperation between Deedha elders, forest guards and provincial administration to curb illicit charcoal

trade or even peace promotion between warring communities. The cooperation are adhoc and on need basis”

Another respondent noted that “yes, because the functional link is value addition to the already inculcated natural resources management systems in existence, the formal structures have a clear-cut implementation strategy, it can be better enforced and cross cutting”

Similarly, another respondent noted, “The link has led to establishment of lasting natural resources sharing agreements between warring communities”

4.3.2 Operational divergence between traditional and formal institutions within Isiolo rangeland governance

The study identified various operational divergences between traditional and formal institutions within Isiolo rangeland governance. The most mentioned by the respondent were:

-In terms of administrative, logistical and technological, formal institutions are better than traditional institutions.

- Formal institutions have better finances, capacities and organisations.

Information, education and communication, resources and dissemination divergences; “Traditional structures are community owned and community driven but lack capacity while formal structures are regarded as alien idea and mostly regarded as unrealistic” and Traditional systems have flexible disputes resolution mechanism while formal institutions have rigid and a slow in their approaches.

One of the interviewed respondents noted that;

“The opportunities for horizontal and vertical linkage in governance of natural resources are there but under-utilized. No county legislation that empowers Deedha to govern natural resources and sometimes they are at odd with criminal judicial system when they enforce their rules on errant individuals. For example, errant community member can break Deedha laws and run to police or court for protection when charged or fined by elders. This undermines the authority of traditional institutions. Again, the indigenous knowledge and best practice is not effectively mainstreamed into the county plans and polices for managing natural resources. Parallel committees and structures are created by county, national institutions and even NGOs for managing natural resources. For example, conservancies have

become stumbling block to management of resources under traditional custom and practice. The migration corridors for pastoralist are blocked and community shrines and fallback areas during drought have been converted into lodges and campsites. Conservancy is threat to pastoralist ownership of land, livelihood, culture and way of life”

The study further probed the respondent on the existence of the policy measures to seal the operational gap between pluralistic resource governance arrangements. The finding presented in figure 11 shows that the majority of the respondents disagreed on the existence of the policy measures to seal the operational gap between pluralistic resource governance arrangements. The findings show that Isiolo rangeland management lacks policy measures to seal the operational divergences between pluralistic resource governance arrangements. The respondents however acknowledged that the necessary policies were at development stages.

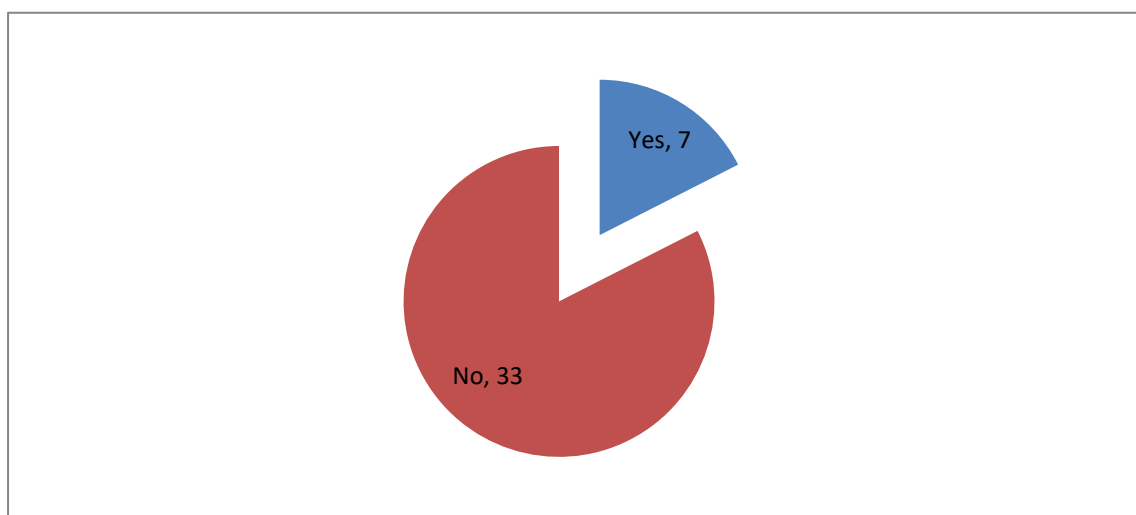


Figure 11: Whether there are policy measures to seal the operational gap between pluralistic resource governance arrangements

The respondents were asked to suggest some of the policies that should be adopted to seal the operational divergence between pluralistic resource governance arrangements. Some of the policies suggested including;

- Integrated Deedha policy
- Policy for institutionalization of Deedha Systems
- Legislation of Deedha law into the county statutes

- Enactment of relevant legislations that recognizes the informal/traditional systems and streamline resource management
- Facilitate and support traditional rangeland stewardship

One of the respondents quoted said that;

“County to pass Isiolo rangeland policy and customary natural resource management bill this will seal the operational gaps between formal and informal instructions, reduce conflict of interest and duplicity”

Some of the Political systems involved in natural resources management that pose challenges to inclusive sustainable rangeland management mentioned by respondents include;

- Clan/inter-tribe political power balance
- Elected politicians interferences in politics of natural resources governance
- The new government administrative structures are competing for authority with traditional systems and are bringing challenges to sustainable rangeland management.

4.3.3 Ways of Merging Functionalities of the Formal and Informal Institutions

The study finally sought to find out from the respondents some of the most effective ways of merging the functionalities of informal and formal institutions involved in governance of natural resources within the pastoralist communities in Isiolo County Kenya. Some of the way mentioned include;

- Developing formal policies to be adopted in Deedha systems
- Deedha establishment to be fully facilitated and adopted in resources management
- Cross cutting institutionalization of Deedha with neighbouring communities Deedha replication
- Involvement of the communities at the lowest level in decision making □ Reducing duplication and strengthening of Deedha council

4.4 Discussion of the Findings

The first objective of the study was to determine the existing traditional governance systems used the target communities in management of the natural resources in Isiolo County, Kenya and to study their evolution. The results of the study established existence of traditional structures and institutions in governance of natural resources within the pastoralist communities in Isiolo County. One of the most mentioned institution was the Deedha which was considered the highest traditional institutions in management of natural resources. Deedha was made of elders from different Rangeland Users Association and Water Users Associations. These results corroborate with those of Roba, Gibbons and Mahadi (2013) on strengthening natural resource governance in Garba Tula which identified Deedha as most common traditional institution in natural resources governance. Resource rights and tenure have been identified as a critical aspect of decentralized natural resource management that is needed to ensure that users feel ownership in the long-term sustainability of their resources (Acharya et al.2008; Paudel et al.2009; Larson 2010,2011; Larson et al. 2013)

These institutions received training and capacity building in terms of natural resources governance. In their study, Mowo *et al* (2013) also acknowledged the role played by traditional institutions in the governance of natural resources in East Africa. The study finding are further consistent with those of Bonye (2007) who found that existence of traditional institutions in natural resources governance in Ghana. Agrawal (2008) further agreed that local institutions have capabilities to ensure effective governance of natural resources. These findings show that traditional institution still played a significant role in the management and governance of natural resources across the world. In northern China, participatory water users' associations (WUAs) are replacing traditional irrigation water management systems in order to promote economically and ecologically beneficial water management options (Zhang et al.2013)

These institutions have evolved to cope with changing dynamics brought about by formalization of the natural resources governance. The findings concur with Dore (2001) and Mowo (2013) who found that traditional institutions in Zimbabwe have undergone

transformation for sustainable natural resource management. In Nepal, in situations where the formal mandate for newly decentralized institutions has lapsed, local elites tend to fill the vacuum of control, most often to the detriment of the rights of women and marginalized resource users (Nightingale 2006; Nightingale and Sharma 2014).

According to these study findings, the traditional institutions continue to play a significant role in natural resource governance especially in conflicts moderation and mitigation since they are trusted more by majority of the communities than the formal institutions. The study findings support Ostrom (2003) arguments that a more effective way of managing the common must bring together all the users in a long-lasting and cooperative manner. Muigua (2016) also found that traditional institution was very effective in the management of natural resources conflict in the Northern part of Kenya. The author singled out the role of mediation and negotiation initiated by local institutions as among effective ways of natural resources conflict moderation. Community-based institutions are vital in the enforcement of shared norms of behaviour and in resolving conflicts (North 1990; Ghate and Chaturvedi 2016)

Ashu (2016) who carried out study on informal and formal institutions in management of the forest project in Cameroon found that communities living near supported informal structure more than formal structures. They believed in the structures that have existence before that offer control over land to the communities as part of the tradeoff in their interactions.

The study also examined the emerging institutions on natural resource management in rangeland. The resulted showed that various formal institutions from national government agencies to county government department were involved in management of the natural resources. Formal rules appear to be more effective and important primarily because of the virtue of the state and formal enforcement of laws and policies, while the informal ones acquire power through customary influences and beliefs (Sokile et al. 2005). Mutunga (2016) researching on natural resources management framework in Kenya found involvement of formal institutions in the management of natural resources in Laikipia

County in Kenya. However, the author noted that these institutions were ineffective due to lack of community participation.

The study established various operational divergence and links between informal and formal institutions involved in natural resources management. Some of the link identified includes formal institutions being fundamental hybrids systems of traditional systems, both systems are focused on service delivery in terms of natural resources management, the two systems have a common vision, ideas of involvement of the communities in decision making and finally traditional systems engage with formal institutions to manage conflicts. The study finding are consistent with those of Yeboah-Assiamah, Muller and Domfeh (2017) who also concluded that for formal arrangement in the governance of natural resources to be effective, there must be operational linkage with the informal institutions. The authors noted that those both formal and informal institutions serve as catalysts to reinforce natural resource governance; however, the two could also combine to form a clandestine network to facilitate unethical resource exploitation.

The operational divergence between informal and formal institutions was also established by the study. For instance, in terms of administrative, logistical and technological, formal institutions are better than traditional institutions; Formal institutions are better finances, capacities and organisations; Information, education and communication, resources and dissemination divergences and traditional systems have flexible disputes resolution mechanism while formal institutions have rigid and a slow in their approaches. This study concurs with Kafalew *et al.* (2015) and Tugume *et al.* (2016) who argued that there is value of indigenous knowledge in the use, management and conservation of natural resources.

The study finding further supports Levine and Pavanello (2012) who noted that failure by government institutions to recognize pastoralists' way of life is in itself a source of conflicts. The consequences of this way of thinking towards pastoralists have been serious causing conflicts and tensions in pastoralist areas to escalate. The finding of the study further agrees Nakangu (2016) argument that, formal institution and structures development programs undermine the various natural resources governance systems attached to the culture and the

collective use systems and rights that they support, which is arguably the most secure natural resources management system for the most vulnerable.

Agrawal and Chhatre (2007) through an empirical study in Himachal Pradesh maintain, “The success of local resource governance institutions may be adversely affected by the close involvement of higher-level government officials in decision-making processes. In China, confusion over the direction of policy has led to either inappropriate policies or poor implementation of existing policies—as, for example, in the case of rangeland policy (Gongbuzeren et al 2015). Institutional weaknesses have been identified as the direct result of bureaucratic political weaknesses and non-accountability in South Asian states like Afghanistan, Bangladesh, India, Nepal, and Pakistan (Robbins 2000; Wirsing 2007; Barnes and Laerhoven 2014; Fleischman 2014).

CHAPTER 5: CONCLUSIONS

5.1 Existing and Evolution of Traditional Governance Systems of Boran

The study concluded that natural resources among pastoralist communities in Isiolo County was governed by both informal institution such as Deedha and formal institutions constituted by national and county government. The communities however have more trust in the informal structures and institutions because of their flexibility and inclusiveness. The communities consider informal structure more effective as compared to formal structures. One of the reasons cited for trusting of informal structures was because they are less prone to corruption compared to formal structures. The study further concluded that informal systems of natural resources management are eroded due to the emergence of formal institution with the same mandate as informal structures. The reduced popularity of informal institutions is coinciding with the deterioration of these natural resources due to overexploitation enabled by ineffectiveness of the formal institutions.

The study also concluded that communities within the study areas especially authorities who are custodian of the traditional natural resources governance systems continue to devise ways in which the systems can cope with the changing times. For instance, rangelands that are still under the management of traditional systems suffer less overexploitation of unequal access compared to areas managed by formal institutions. Because of the effectiveness of the traditional systems/structures is the basis for debate on the ways the traditional structures can be incorporated and harmonized together with the formal systems to enhance the effectiveness of natural resources governance.

5.2 Emerging Institutions on Natural Resource Management in Rangeland

The study further concluded that the emergence of formal institutions in matters of natural resources governance especially among pastoralists still causes confusion and causes conflicts with the traditional systems. Both county and national government institution managing natural resources disregard the existence of the role played by informal structures. These formal institutions impose conditions without consulting the community

leaders and most of the times these conditions go against the tradition's communities are used to.

The study also concluded that both informal and formal institutions and informal structures have a common goal, but the approach used is completely different. The approaches by informal institution are rigid and disregard the social fabric that holds these pastoralist communities together. Because of these divergences and many other communities, have trust issues with formal institution and favour informal institution, which govern, based on the rules and regulation developed and executed by the communities themselves. The study concludes that the most effective ways on natural resources governance among the pastoralist communities should inclusive where all the players are involved in setting the rules and ensuring every member of the communities adhered to set rules. The emergence of the formal institution with disregard to informal structures would lead to ineffectiveness in natural resources governance.

5.3 Link between Emerging Formal Institutions and Traditional Pastoral Governance and Its Implication on Rangeland Management

The study further concluded that informal and formal structures that existed within the study areas had link and convergence in their approach to natural resource governance. Among the major convergence of traditional and formal natural resources governance systems is that formal institution are fundamental hybrids systems of traditional systems, formal systems are complimentary of the traditional systems and common vision, ideas of involvement of the communities in decision making. The study concluded that either though the two systems had convergence link, there were difficulties for informal and formal institutions to co-exist in management on natural resources. Since the formal institution are founded on legal framework while informal structures are formed on customary and traditional principles, formal institution institutions threaten the effectiveness of these informal structures.

The study finally concluded that ensuring equal access to natural resources among various water users within Isiolo County would go a long way ensuring reduced natural resources

related conflicts among various users. There is a need for respect for rule of law as set up by the Constitution of Kenya 2010 on environment and water Rights, water managing Institutions which include WRA and WRUAs which are anchored in the principles of Good governance founded on several UN protocols on sustainable environmental stewardship in order to promote equity, pro-environmental practices and land use practices that conserve green water such conservation agriculture.

5.4 Recommendations

The study made the following recommendations; the informal structures used by pastoralists' communities in Isiolo should be reinforced by county government to be more effective. The government should provide them with necessary support in terms of resources and protection to ensure they execute their mandate with fair of favour. Both the National and County government should formulate policies that recognize the role-played by informal structures in natural resources governances. The representative from the traditional structures should consulted to ensure the policy formulation in inclusive and reinforces the role for both informal and formal institutions.

The study recommends the adoption of integrated system of natural resource governance that incorporates both formal institutions and informal structures each with a clear mandate and responsibility. The institutions responsible for governance must be protected by proper legal framework both informal and formal institution to ensure they remain effective without overlapping mandate. There is a need for environment education on natural resource management through informal institutions and other agencies to instil good natural resources management practices that will ensure the available resources are management properly to satisfaction of all water users.

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Appendix: I. Key Informants Interviews (KII)

General information

Name.....Gender.....

Institution/Org.....

1. What are the existing formal institutions arrangements within the natural resource governance realm in Isiolo pastoral zones?

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2. How does this institutional establishment affect the resource use rights?

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3. What arrangements exist, in both policy and legislation that reinforce the governance of these institutions?

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4. Is devolution an enabler or constraints to the effective resource governance in line with indigenous people's values, norms, etiquette and vision for future? Expound?

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5. What are the indigenous authorities and enforcement structures, which govern and underpin the various rights of pastoralist in Isiolo region?

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6. How do these traditional structures help in resource governance and establishment of climate resilient communities?

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7. Are there any functional link between the traditional system and formal system?

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8. Has this functional link helped in efficient resource use governance and in what ways?

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9. What are the operational divergences between the traditional and formal institutions within Isiolo rangeland governance?

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10. Are there any policy measures in place to seal the operation gap between the pluralistic resource governance arrangements?

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11. What policy options would you suggest that would inform improved management, control, and policy regarding the rangeland governance?

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12. How does the traditional governance institution (or Deedha) cope with changes (socio-economic, political and ecological) to pastoralists' lives and livelihoods over time?

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13. How has the establishment of formal institution of rangeland management contributed to resource governance & conflict reduction?

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14. Are there any political systems involved in natural resource governance that pose challenges to all-inclusive sustainable rangeland management?

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15. Are there any binding statutes with neighboring communities (Samburu/Somali) with regard to resource use and land management?

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Appendix I1: Focused Group Discussions

1. What is the history/evolution of traditional governance arrangement (*Deedha council*) in resource governance?
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2. What is the significance of Deedha system to livelihood support and resilience to climate change?
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3. What are the existing traditional protocols with regard to utilization and management of natural resources in the pastoral zone of Isiolo?
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4. Who enforces these protocols and in what ways?
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5. Are individuals/community supportive to the Deedha stewardship?
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6. How the capacities and authorities of traditional institutions are weakened and who is responsible?

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7. What transformation has the 'Deedha' governance council undergone overtime?

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8. What are the existing traditional statutes about resource governance and rangeland management?

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9. Are there any binding statutes with neighboring communities (Samburu/Somali) with regard to resource use and land management?

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10. Are there any formal rangeland management and governance arrangements in this area?

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11. How does this impact on the existing Deedha council about resource governance and rangeland management?

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12. Are there any overlapping measures between these pluralistic forms of resource governance?

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13. What do you think are the main causes of the conflict in this area?

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14. How best do you think that these conflicts can be moderated?

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15. What are the role(s) played by the existing formal/informal institution of resource governance in managing the conflict?

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16. What do you suggest is the best way forward in merging the functionalities of these formal and customary establishments?

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