DYNAMICS OF INSTITUTIONAL ARRANGEMENTS AND THEIR ADAPTATION TO SOCIO-ECONOMIC AND ECOLOGICAL CHALLENGES IN PASTORAL AREAS OF NORTHERN KENYA

BY

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Declaration

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

Signature ……..Date…….

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This thesis has been submitted for examination with our approval as university supervisors

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Dedication

I dedicate this work to all the people who have made a life in the Northern Rangelands of Kenya.

I salute your resilient spirit.

Acknowledgement

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General abstract

The Northern Rangelands of Kenya are home to approximately 10 Million people and the key livelihood is pastoralism. The rangelands are a source of numerous and diverse goods and services, that are sometimes tangible and measurable and others not. These are best categorized within the Total Economic Value (TEV) framework as direct, indirect, option and bequest values. Pastoralists' ability to manage the rangelands has rested in the capacity of customary institutions to make and uphold rules and sanction breach of rules. These institutional arrangements are however challenged in their capacity and as a result are changing from their traditional form into new hybrids of management in order to cope with socio-economic and ecological changes. There is no substantial information on the dynamism of these institutions as well as how they affect the value of the pastoralist ecosystem services benefits to support policy seeking to address the underlying challenges. This study seeks to address this gap by evaluating the changing nature of pastoralists' institutional arrangements to cope with the socio-economic and ecological changes and how this is contributing to value of ecosystem services benefits in the Northern Rangelands of Kenya.

The study was carried out in Kinna Division (Isiolo, County), Makurian Group Ranch (Laikipia, County) and West Gate Community Conservancy (Samburu, County), to represent three types of institutional arrangements. These arrangements include elders only, group ranch committee and community conservancy board respectively. Key informant interviews, focused group discussions and household survey methods were used to gather data. Data was managed and analysed using Ms office (Ms Access, Ms Excel), social network analysis and STATA softwares.

Findings show institutional arrangements are changing overtime and the change is characterized by an interaction of players indicating co-management. Types of institutional arrangements were noted to influence economic values of ecosystem services benefits. This was evidenced by the presence of a robust institutional framework in marginalized area and their support to address socio-economic challenges thus fueling development. The results further show that external actors are also attracted to community institutional arrangements that have a semi-formal structure (group ranch committee and conservancy board), than an elders only type management. Co-management and livelihood diversification were two observed features of enhanced resilience that need to be considered to stir development in the Northern Rangelands of Kenya.

The study findings will support the ASAL policy by establishing a multi-sectoral and multi-stakeholder framework for regional development. Further, these findings will be useful as the devolved county governments seek ways of engaging community leadership in both resource management and economic development.

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Acronyms

ALDEV	African Land Development Board
ASALs	Arid and Semi- Arid Lands
ASCU	Agriculture Sector coordination Unit
CC	Community Conservancy
CNRM	Community Natural Resource Management
GDP	Gross Domestic Product
GOK	Government of Kenya
GR	Group Ranch
IUCN	International Union for Conservation of Nature
KFS	Kenya Forest Service
KNBS	Kenya National Bureau of Statistics
KWCA	Kenya Wildlife Conservancy Association
LAPPSET	Lamu port and Lamu-Southern Sudan-Ethiopia Transport
M & E	Monitoring and Evaluation

MDNKOAL	Ministry of State for the Development of Northern Kenya and other Arid Lands
NGOs	Non - Governmental Organizations
NRT	Northern Rangelands Trust
TEV	Total Economic Value
WTP	Willingness to pay
WTA	Willingness to Accept
IA	Institutional arrangement

Definition of operational terms

Institutions: Are shared concepts used by humans in repetitive situations organized by rules, norms, and strategies (Ostrom 2007).

Institutional arrangements: Describe the particular set of rules and structures governing the allocation and exchange of resources in and through specific transactions (Dorward et al., 2009).

Co-management: Is a partnership by which various stakeholders agree on sharing among themselves the management functions, rights and responsibilities for a given territory, area, or set of natural resources which may or may not have protected area status (Borrini-Feyerabend, 1996)

Resilience: Is the capacity of an ecosystem to cope with disturbance without disintegrating into a different state that is controlled by a different set of processes. In social systems, the capacity of humans to predict and plan for the future is instrumental in resilience. Key features of resilience include the ability of the system to retain control despite of change, capability of self-organization and its ability to increase learning and adaptation capacity. Just as resilience can be degraded it can be enhanced (Holling and Walker, 2003).

Ecosystem valuation: Is simply defined as an attempt to put monetary values to environmental goods and services or natural resources. It is a key exercise in economic analysis and its results provide important information about values of environmental goods and services (Ash et al., 2009).

Total economic value: Is a tool used in ecosystem valuation and provides a better picture of the impact and value of pastoralism by measuring market and non-market values people hold for a

given sector. It provides an aggregation of the main values or benefits provided by a given ecosystem, including use and non-use values. For pastoralist systems, TEV components can be grouped in four categories: direct, indirect, option and existence values (Hesse and Macgregor, 2006).

Group Ranches: Are demarcated areas to which a group of pastoralists who graze their herds individually have official land rights with the operative statute being the Group Ranch Representative Act. The land is held in trust by a group and they often have a title deed or are working towards obtaining one (Wayumba, 2004).

Thesis structure

The thesis is divided into six chapters. Chapter one is a general introduction of the thesis outlining the background (pastoralism, rangeland value and rangeland degradation), problem statement, justification, objectives and materials and methods sections. Chapter two identifies existing pastoral institutional arrangements in the Northern Rangelands of Kenya and their changes overtime. These institutional arrangements are hinged on the land tenure system which in most rangelands happens to be common property regime. This is significant because the existing institutional arrangements are hypothesized to influence development strategies in communities and consequently affect their economic status.

Chapter three measures direct and indirect values derived from pastoral ecosystem services benefits across different pastoralists' institutional arrangements. An economic valuation method is used to calculate economic values at household and communal levels. These are then compared across different institutional arrangements. Chapter four assesses external actors' role in facilitating institutional arrangements to address socio-economic and ecological development. Community's ability to attract external partnership contributes to economic development and increased incomes for communities.

Chapter five addresses the importance of co-management in resilience. The work describes how pastoralists' institutional arrangements are rearranging themselves to be able to address the new social economic and ecological challenges. A resilience approach is instrumental in changing social-ecological systems to ensure sustainability of the new models. Chapter six outlines the general discussion, conclusion and presents policy implications drawn from the study

Chapter 1

1.1 General introduction

Resource management in the Northern Rangelands of Kenya

Kenyas' drylands make up 84% of Kenya's total terrestrial land surface, account for more than 80% of the country's eco-tourism interests, 60% of the nation's livestock, 75% of its wildlife population (Barrow and Mogaka, 2007) and support about 10million people (CBD/UNEP/IUCN, 2007). Pastoralism is the common livelihood strategy in the rangelands owing to its ability to adapt to erratic and low level of rainfall that result to highly variable pasture growth (Little et al., 2007). Many researchers argue that mobility and flexibility enables pastoralists make best use of patchy and fragile environments (Nori, 2007).

For many Kenyan pastoralists', the ability to manage the environment sustainably has rested on the capacity of their customary institutions to make and uphold rules and sanction breach of those rules. These institutions have been weakened through erosion of customary institutions, sub-division of group ranches, and even eliminated in some instances, posing a significant threat to sustainable natural resource management (IUCN, 2011). Opportunity exists to build on existing village-level institutions or exploring innovative institutional arrangements to develop a participatory communal resource management system that helps protect the biodiversity and productivity (Hoffmann, 2004). Community institutional arrangements in the Northern Rangelands of Kenya are hinged on the type of land tenure systems and have been dynamic from the colonial to post-colonial era. Post-colonial era saw emergence of group ranches and trust lands, and the last decade has seen a rapid growth of community conservancies.

The institutional environment under which rural producers operate is important because governance of property rights influences rural producers' choice of production practices and outputs (Barrett et al., 2002). While promoting agricultural or rural development in the marginalized communities, reforms in land tenure institutions plays a big role in reducing inequality, improving food security, income and household welfare. This process is however complex and has not been a huge interest area for the international organizations due to its politically sensitive nature (Ghimire, 2002). The absence of an enforcer implies a free for all, hence everyone behaving in an opportunistic manner. For markets to efficiently function they require some organization enforcing contracts and property rights. This organization must have the mandate to force people to adhere to its decisions, implying that the enforcer has to be the government (White, 1999). International support can be useful to enable social mobilization by land poor peasants with the help of the civil society organizations such as rural trade unions, farmers' organizations, cooperatives amongst other professional organizations. These can help build capacity through literacy campaigns, leadership and training programmes. To achieve real change in rural power structures in a national context, cooperation is required between international and national levels as well as interaction between the state and civil society (Ghimire, 2002).

Change in institutional arrangements need to embrace a resilient approach to ensure they are addressing the community needs in a sustainable way. In social systems, the capacity of humans to predict and plan for the future is instrumental in resilience. Key features of resilience include the ability of the system to retain control despite of change, capability of self- organization and its ability to increase learning and adaptation capacity. Just as resilience can be degraded it can

be enhanced. Two important components in enhancing resilience are ecosystem diversity and sharing of resource management by a diverse group of stakeholders (Holling and Walker, 2003). It is therefore important to understand where resilience resides in a system, when and how it can be lost or gained so as to prevent a social ecological system from moving in an undesirable state as well as discover points of intervention (Holling, 1973).

Existing opportunity in the ecosystem service valuation approach

Drylands are a source of services and products such as biodiversity, tourism and raw materials yet still record a high poverty index. The numerous and diverse values associated with rangeland resources and pastoralism are sometimes tangible and measureable, and in other instances not tangible or measurable. In instances where they can be measured, they are often underestimated (Hatfield and Davies, 2006). Ecosystem service valuation approach is rapidly growing in the area of sustainable land use practices and natural resource management. ASAL's rich with ecosystem services and which also support marginalized human population would benefit from this approach (O' Farrell et al., 2011). Ecosystems in general are difficult to value due to their complex, nonlinear behavior, with potential to undergo irreversible changes and a high dependency on social and environmental factors (Norgaard et al., 2007). An understanding of the spatial scales at which these services are generated and how they affect beneficiaries is needed for their valuation (Hein et al., 2006). Valuation allows one to briefly present complex ecological interactions in a single common currency. This is useful to better evaluate the tradeoffs between different services and makes it easier to communicate the importance of ecosystem services to policy makers (Ash et al., 2009).

1.1.1 Problem statement

Community Based Natural Resource Management (CBNRM) has been extensively promoted as an approach to address biological conservation and achieving socioeconomic goals. The rationale for CBNRM is often convincing but relatively little empirical evidence of its success exists. In Kenya, many CBNRM initiatives have not resulted in more equitable distribution of power and economic benefits, reduced conflict or sustainable resource use (Kellert et al., 2000). Though pastoralists have developed elaborate mechanisms to collectively manage resources through their extensive and resilient system, there is need to explore innovative mechanisms for implementing effective, participatory and sustainable rangeland resource management (Hoffmann, 2004).

Rangelands are largely characterized by pastoralism as a source of household and environmental benefits. There is however a general lack of understanding of the value of the rangelands in entirety (Oba and Kotile, 2001). Their wealth in ecosystem services and support to marginalized human population make them potential for an ecosystem services valuation approach. This approach is rapidly growing as a tool for supporting sustainable land use practices and natural resource management (O' Farrell et al., 2011).

Despite increase in research and development in this field, focus of past studies has not been evenly distributed across world's different habitats (Fisher et al., 2008). In particular, arid and semi-arid areas which host pastoralists and agro-pastoralists and often viewed as marginal in biological productivity, have received less attention (Constanza et al., 2007). Past studies have also focused on areas with existing data and knowledge and these often exclude arid and semi-arid regions (Nelson et al., 2009).

1.1.2 Objective

The overall objective of this study is to evaluate types of pastoralists' institutional arrangements and their changes overtime, value of ecosystem services benefits in their areas of operation, and their adaptation to socio-economic and ecological changes in the Northern Rangelands of Kenya.

The specific objectives are:

i. To identify existing pastoral institutional arrangements and their changes overtime
ii. To measure direct and indirect values derived from pastoral ecosystem services across different pastoralists' institutional arrangements
iii. To assess external actors role in facilitating institutional dynamism and socio-economic and ecological development
iv. To assess how different pastoralists' institutional arrangements have adapted to socio economic and ecological challenges

1.1.3 Research questions

i. What pastoral institutional arrangements exist in Northern Rangelands of Kenya and how have they changed overtime?
ii. What are the direct and indirect values of pastoral ecosystem services across different pastoralists' institutional arrangements?
iii. What are the roles of external actors in facilitating institutional dynamism and socio-economic and ecological development?
iv. How have different pastoralists' institutional arrangements adapted to socio economic and ecological challenges in the study region?

1.1.4 Justification

Objective one of the study evaluates how customary institutional arrangements are naturally changing to adapt to socio economic and ecological changes. This is significant because the customary institutional arrangements are eroding and thus not effectively playing their role of rangeland management and contribution to economic development (IUCN, 2011). Findings will help address the type of institutional arrangements needed in the new face of a changing system. This is especially useful as the Kenya government implements the Kenya national land policy that recognizes the complexity of the land management issue.

Objective two will contribute evidence on value of pastoralist ecosystem services benefits in the Northern rangelands in different institutional arrangements; information that is currently very minimal. This evidence is useful for all external actors (state and non-state actors) who may have an interest in investing in the Northern Rangelands of Kenya but lack information on the value of various ecosystem services and how the type of community institutional arrangements affect this value. The information will also be useful in determination of poverty indices by the state for purposes of more realistic ranking.

Objective three seeks to evaluate how external actors (state and non-state actors) facilitation can play a role within the pastoralists' institutional arrangements, whilst objective four investigates how pastoralists' institutional arrangements are adapting to socio-economic and ecological challenges. Findings of objectives three and four intend to demonstrate how co-management can provide resilience in the socio-ecological systems such as the Northern Rangelands of Kenya. This evaluation is timely as the newly devolved county governments seek to implement their

mandate and considering that community leadership is instrumental to achieve success in community development.

1.2 General materials and methods

1.2.1 Study area

The study was conducted in the Northern Rangelands of Kenya, predominantly arid and semi-arid areas and thus characterized by low and unpredictable rainfall. There are various classifications of the Northern Rangelands of Kenya based on the moisture index and annual rainfall as described in Table 1.1. Study sites used in this study fall with zone four and six.

Table 1:1: ASAL climate classification based on the moisture index and annual rainfall

Zone	Classification	Moisture index (%)	Annual rainfall (mm)	Per cent of Kenya's land area
IV	Semi-humid to semi-arid	40-50	600-1100	5
V	Semi-arid	25-50	450-900	15
VI	Arid	15-25	300-550	22
VII	Very arid	<15	150-350	46

Source: Sombroek et al., 1982

Three study sites namely; Kinna Division (Isiolo County), Makurian Group Ranch (Laikipia County) and West Gate Community Conservancy (Samburu County) were purposively selected to represent the main types of institutional arrangements (elders only, group ranch committee and

community conservancy board management) operating in the Northern Rangelands of Kenya (Figure 1.1). The institutional arrangements selected within each county do not imply that these are the main institutional arrangements in the respective counties, but only serve as case studies that provide three distinct treatments for comparison purposes. The common type of land tenure system in the study area is communal property regime. Communities therefore make decisions collectively through guidance by the existing institutional arrangement such as the elders, group ranch committees and community conservancy boards. The Kenya Constitution (2010) describes communal land as land that is lawfully managed or used by a specific community as community forest, grazing areas, shrines, ancestral land and lands traditionally occupied by hunters and gatherer communities or land lawfully held as trust land by the county governments.

Kinna division represents a Trust land system where council of elders commonly referred to as Dhedha elders form key community decision makers and is charged with the responsibility of resource management (land, pasture, water) at the community level. This body is formed by individual elders from different closely knit households called the "Olla". The management strategies are guided by an unwritten laid down rules, regulations, norms, values and beliefs. All the land in Isiolo is under trust land arrangement with local county government holding land in trust for the people. Kinna Division is located 120 km from Meru town and closely borders Meru National park. It is a semi-arid area with long rains falling between April and May while short rains fall in November. Pastoralism is the main livelihood however a significant number of households are farming as a result of two rivers flowing in Kinna. Vegetation composition is characterized by herbaceous plants dominated by *Aristida papposa* and *Digitaria velutina*, while the woody plants are dominated by *Commiphora* sp.

Makurian group ranch (GR) represents a group ranch system. The choice of Makurian GR was guided by the fact that it is one of the few group ranches in Laikipia County that is not under the influence of the community conservancy model. Of the 13 group ranches in Laikipia County, 10 have embraced the community conservancy model. Makurian GR is located in Mukogodo Division, is over 7000 ha and is owned by the indigenous Maasai of the Ndorobo ethnic group who are predominantly pastoralists. The GR is managed by a GR committee constituted majorly by key elders in the community but also has representation from women and youth. The committee is put in place through elections that takes place every two years and operate within the mandate of a GR constitution. The topography is semi-arid and although the area gets good rainfall averaging 800mm, overgrazing and the hilly nature of the area has greatly accelerated soil erosion. Woody vegetation is being depleted through charcoal burning and the effect is the replacement of palatable species such as *T. triandra* with *Harpachne schimperi* and *Microchloa kunthii*. Key economic activities include pasture management, forest management, wildlife management, sand harvesting livestock marketing and employment. Sand is the source of communal revenue used for GR operations such as administrative costs, community projects and school bursaries. The GR set aside a conservation area used as a campsite with help of Kenya Forest Service (KFS) in 2007 however this has not been currently tapped.

West Gate community conservancy represents a community conservancy institutional arrangement. Initiated in 2004, it is one of the seven community conservancies in Samburu County and is located within Ngutuk Ongiron Group Ranch. Ngutuk Ongiron GR covers approx 34,000ha with the core conservation area taking up 880ha. The conservancy is managed by an elected board which draws its membership from different parts of the GR (IUCN 2008c) and has

a good gender representation of elders, youth and women. The area is semi-arid; receives average rainfall of 580mm, thrives well in pastoralism and is notable for its immense potential and contribution to the National Livestock industry particularly the slaughter stock. Some inhabitants practice agriculture and the tourism sector is tremendously growing, a trend largely attributed to the conservancy model. The area is dominated by *Cynodon dactylon* and *Aristida papposa* type of vegetation. These grasses are fast growing and when damaged are quick to recover. They are therefore found in drylands due to their heat and drought tolerance nature that allows them to survive where few other grasses do.

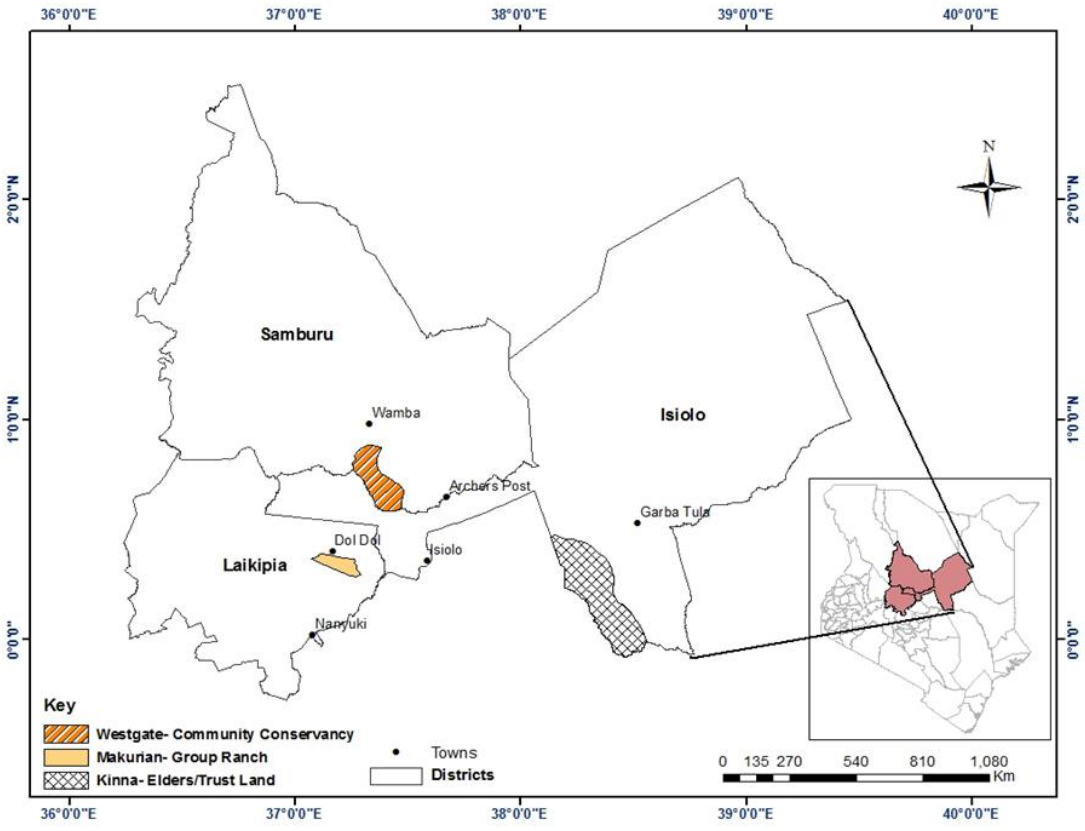

Figure 1:1: Types of Pastoralists institutional arrangements in the Northern Rangelands of Kenya

Source: Authors own conceptualization (2015)

1.2.2 Sample size, data collection and analysis

The sample size was estimated using a formula by Israel (2009):

$$N = {Z^2 p(1-p)}/{E^2}$$

Where, N = Sample size required.

Z = Confidence level at 95% (standard value of 1.96).

p = Estimated proportion of attribute that is present in the population

E = Desired level of precision to detect difference among strata observations.

The sample size was estimated by assuming variability in the proportion of dependent variables (p) of 0.5 and a desired level of precision of 15% which is potentially needed to estimate a difference among the strata. The calculated sample size was multiplied by three to correct for design effect and accommodate a comparative analysis of the strata, and increased by 20% to adjust for non-response or recording errors. The calculated sample size was rounded up to the closest number in-order to match well with the number of strata (three institutional arrangements) to be surveyed. A total of 150 households made up the sample while sample size per stratum was estimated by dividing total households (150) by the number of strata (three) to give 50 households per stratum. Fifty percent of villages in each study site were randomly selected from the total number of villages in the study site to give a good representation of the area as well as to keep the sample to 150 households. To sample the 50% of the villages to

survey, total number of villages was written down in papers, folded and mixed together and afterwards half of the folded and mixed papers were picked. To obtain number of households sampled in each village, the total number of households per study site (50) was divided by number of randomly sampled villages. The number of households to be selected was proportional to village size and the distribution of households sampled is detailed in Table 1.2.

Table 1:2: Distribution of households within villages in the study sites

Kinna		Makurian		West Gate	
Villages	**Respondents**	**Villages**	**Respondents**	**Villages**	**Respondents**
Gubadida	10	Katonga	15	Lempaute	12
Jillo Dima	10	Lariakorok	19	LpusLeluai	13
koticha A	10	Loisukut	16	Remot	12
Madina	10			Sasaab	13
Town	10				
Total	**50**		**50**		**50**

Qualitative data was collected using focused group discussions (FGDs) and key informant interviews guided by checklist. Focused Group Discussions of five women, five men and five youth in leadership were conducted in each study site. Two key informants in leadership within the institutional arrangement and one key informant working for an organization partnering with the institutional arrangement were interviewed from each site. Key informants were selected based on their extensive knowledge of the area and close working relationship with communities in the area.

Quantitative data was collected through a household survey using semi structured questionnaires that targeted household heads. The household survey was facilitated by enumerators with a local understanding of the area. The key theme of both qualitative and quantitative primary data was existing community decision making structures and the existing variations observed between them. A time difference of 10 years (2002-2012) was applied to show possible trends in arrangement of community decision makers tasked with management roles. Data was also collected on household sources of revenue both at a household and communal level. This information was useful to help calculate direct and indirect economic values. More data was gathered on actors (both within community decision makers and external actors) supporting communities in addressing their socio-economic and ecological challenges.

Methods of data analysis included factor analysis to identify institutional arrangements domains, descriptive statistics to show the socio-economic characteristics of the households and econometric analysis to understand the relationship between the institutional arrangement and economic values at both household and communal levels.

1.3 General literature review

1.3.1 Introduction

This section covers general literature review relating to the subsequent chapters. The section details key aspects of the Northern Rangelands of Kenya that directly or indirectly affect the study objective. The study sites are made up of pastoralist communities and hence the need to briefly contextualize pastoralism and resource management. The rangeland value is also briefly explained to lay a foundation for further discussions on ecosystem services valuation approach as

an opportunity for the Northern Rangelands of Kenya. One of the big challenges of the rangelands is degradation. This is also explained considering that its largely related to the community based resource management aspects which form a large scope of this study.

1.3.2 Pastoralism system and resource management

Pastoralism is the key livelihood system in most rangelands. Pastoralism can be described as a system of adaptation to the unpredictability and low level of rainfall. It is defined as any predominantly livestock-based production system that is mainly extensive in nature and uses some form of mobility of livestock, regardless of the extent to which it contributes to the household economy (Little et, al. 2007). Pastoralist precise figures are not known but when all types of mobility are considered (nomadic and transhumant), there are approximately 200 million pastoralist in the world generating income where conventional farming is limited or not possible. Mobility which is a key feature of pastoralism is described as nomadic when the mobility is high and irregular and when there are regular back-and-forth movements between relatively fixed locations, it is called transhumant and sedentary. Climate, environment, water, other natural resources and geographical area dictate the kind of livestock kept, and may include dromedary (llamas, alpaca guanacos, and vicunas), goat, sheep, yaks, horses, and reindeer (IUCN 2011).

It is clear that pastoralist's lifestyle, economy and culture, like others, is in a state of continuous change. Restoring traditional resource management, governance and production would help maintain proper management however this is a huge challenge. Outside forces continue putting pressure on pastoralism to change and hence the need to set proper management plans that

appreciate the new changes (IUCN 2011). In most rangelands, management is now characterized by a mosaic of co-existing and overlapping claims to resources with weakly defined boundaries and flexibility of rights and negotiations. Key constraints (lack of tenure, promotion of privatization, minimal health and education services and security) must be addressed to ensure that the synergistic relationship between livestock-based livelihoods and environmental health can be successful and sustainable (Aredo, 2004).

Community Based Natural Resource Management (CBNRM) has been extensively promoted as an approach to address biological conservation and achieve socioeconomic goals. The rationale for CBNRM is often convincing but relatively little empirical evidence of its success exists. A study evaluated management strategies in Kenya, Nepal and USA using social and environmental indicators (Equity, empowerment, conflict resolution, knowledge and awareness, biodiversity protection, and sustainable resource use). Findings indicated that the reality often falls short of the discussion around the subject especially in Nepal and Kenya. CBNRM implementation is often difficult owing to the inability to predict and guide behavior of complex organizations particularly bureaucratic and local institutions. Success could however be achieved if institutional building and organizational reform on socioeconomic development and scientific considerations is prioritized and implemented (Kellert et al., 2000). For Kenya, and more specifically the Northern Rangelands of Kenya, land tenure system is a critical component that needs to be addressed to achieve effective CBNRM.

In the colonial period, extensive pastoralism remained, in the eyes of the colonial administration, intrinsically harmful to the environment and a constraint on social and economic improvement (Woodhouse et. al., 2000). The colonial government therefore established the African Land

Development Board (ALDEV) in 1945 to improve on the carrying capacity of the land, the productivity of cattle, and to control the ecological imbalance usually associated with such fragile ecosystems. This move led to the process of land adjudication and registration that saw group ranches formed and incorporated under the Land Adjudication Act (Cap. 284 of 1968) (Mwangi, 2007). The group ranch was an attempt to formalize traditional community decision making structures that has not worked well as hoped (Mbote, 2005). Increasing pressure for land from agricultural communities and demand for individual titles has resulted in sub-division of group ranches, especially in Kajiado and Narok Counties. The impact has been diminishing grazing areas and a change from pastoralism to sedentary agriculture, a trend that has precipitated a series of land use conflicts between pastoralism, agriculture and wildlife conservation (ELCI, 2006). The concept initially meant to protect the rangelands from the "tragedy of commons" ironically created one because government either failed to understand or just ignored how common property works. Many group ranches have been subdivided, are stuck in the subdivision or are trying to reconsolidate because subdivision left them worse off (Kibugi, 2008).

In other parts of Kenya, the effect of colonial government preference to private and individualized ownership to land was placement of community lands "in trust" under the county council. Although this classification was intended to ensure county councils hold land for the benefit of residents of that land, in practice, administration has still been driven by a modernization ethic aimed at individualizing land. People have therefore lived on trust land for generations yet they cannot assert any rights to the land (IUCN, 2011). All trust land is vested to

the county council which has authority to manage resources and control development within the land.

A new approach that emphasizes on new skills and behavior among development partners to support local communities develop capacity to manage their own resources in a sustainable and equitable way is gaining recognition. This proposed approach and support to customary institutions to "modernise" in response to new contexts is not to be confused with "westernisation". This is because as much as the dormant and weakening traditional institutions need to adapt to new or changing environments, the decisions about change and the shape of any new system remain with the stakeholders involved (community, government, elders and other external actors). To support reconciliation of traditional and modern structures and management, a key criterion lies in the homogeneity of resource users and managers who have built high levels of trust and social cohesion amongst themselves (Tache and Irwin, 2003).

1.3.3 Economic value of rangelands

There are many reasons behind authorities wanting to change pastoral systems into other land use systems, but a significant factor is the general poor understanding of pastoral systems and of the realities of pastoral development. This is displayed by beliefs that pastoralism is characterized by economic irrationality, low economic performance, reluctance to engage in markets, and unsustainable resource management. Despite this being refuted in past research, it still influences decision making and resource allocation in some pastoral areas (McPeak and Little, 2006). Contribution of pastoralism to any country economy will depend on the relative importance of livestock and agricultural sector. To understand the goals and aspirations of

pastoralists, it is important to keep in mind the diversity of values that their production system yields. There is need to recognize that the largest share of the flow of benefits generated by pastoralism is obtained from marginal lands where other economic activities will usually provide lower returns (IUCN, 2011). Furthermore, pastoralism is more than a livestock-based production system and is not, as such, a traditional form of ranching. Rather, it is a livelihood system that integrates livestock husbandry, in combination with other activities, as a rational economic activity with strong social, environmental and cultural objectives (Homewood, 1993).

Pastoralists are however seeking ways to enable them adapt to the evolving social, political and economic conditions at local, national and regional levels. Good policy and reasonable project planning for pastoral areas will be achieved by understanding the complex relationships and causes of poverty in pastoral areas of East Africa (Hesse and Macregor, 2006). One approach to support this is using the ecosystem services valuation approach. This is being able to summarize and present complex ecological interactions in a single common currency. It enables better evaluation of tradeoffs between different services and between services and other forms of capital such as manufactured capital, and greater ease in communicating the importance of ecosystem services to policy makers. Ecosystem service assessment is gaining recognition as an important tool in the development of sustainable land-use practices and natural resource management. It is developing as one of the cornerstones of this rapidly growing research area and more decision makers are requesting for such assessments (Ash et al., 2009).

Though there is a growing body of literature supporting the valuation of ecosystem services, ecosystems are difficult to value given the complex and non-linear behavior and the potential to undergo irreversible changes (Norgaard et al., 2007). The ecosystem service values are highly

dependent on social and environmental factors. Valuation will therefore require an understanding of the spatial scales at which services generated flow and how they affect the beneficiaries (Tallis and Polasky, 2009). Though work in the field of ecosystem services has increased dramatically, the focus has not been evenly distributed across world's different habitats. Arid and semi-arid regions, commonly viewed as marginal in biological productivity and ecosystem service values have received limited access. Work has also been confined in areas where data exist, and rarely includes arid regions despite the fact that they are home to unique ecosystem services and would benefit as much from an ecosystem service approach to sustainable land use management (O'Farrell et al., 2010).

1.3.4 Rangeland degradation

Rangelands, predominantly used for livestock production are sensitive to land degradation, with 10–20% already degraded (Millennium Ecosystem Assessment, 2005). Rangeland degradation is increasingly spreading (Hoffman et al., 1999) and is now a threat to the pastoral production systems causing an increase in poverty and tribal conflicts over resources (Kassahun et al., 2008). Harris (2010) argues that the extent and magnitude of rangeland degradation remains largely unknown because monitoring programs have been subjective and poorly documented. He further suggests that causes of degradation remain uncertain, often because hypotheses have been articulated too vaguely to test. Where over-stocking is clearly causing damage, we lack sufficient understanding of current socio-ecological systems to identify ultimate and proximate drivers of pastoralist behavior, and thus policy initiatives aimed at sustainability are failing.

Determining a sustainable farming system and stocking rate in arid and semi-arid rangelands is one of the most critical challenges. Effects of rangeland degradation are majorly known to be reduced forage production, poor livestock performance and resistance to diseases (Burke, 2004). Local pattern of vegetation change in pastoralism is determined by the complex process of pastoralists' decision-making. Vegetation composition has indeed changed in the communal lands, from predominantly palatable perennials to unpalatable annuals as well as evidence of localized areas of degradation (Kuiper and Meadows, 2002). A study using satellite image was conducted for local vegetation change in relation to possible control factors, including open water, roads and settlements. The interaction between these factors negatively affected vegetation, as seen by a decrease around roads, water and near settlements. This interactive effect is a likely consequence of the basic requirements of the nomadic pastoralists, namely quality grassland, water sources and the services provided by settlements (Okayasu, 2007).

Unabated invasion and spread of noxious plants also alter the ecological integrity of rangeland ecosystems. The causes of bush encroachment have been a contentious issue in rangeland ecology, where possible causes include shortage of rainfall, heavy grazing, absence of hot brush killed fires, loss of large trees and soil nutrient changes. The resulting impacts on vegetation and the increase in the ratio of grazers to browser amongst herbivores has been postulated to contribute to the development of bush encroachment in semi-arid Southern African savannas and as the main rangeland degradation process in these areas (Burke, 2004). There is ample evidence in literature that bush encroachment causes a decline in the grazing capacity of the herbaceous layer (Smit, 2004). However, it is noteworthy that some woody plants are considered to be of some value because they provide leaves and pods to browsers (goats/camels) and to a lesser

extent to sheep and cattle during dry periods (Solomon et al., 2007). Appropriate management practices are needed to take into account both the pasture resilience, observed localized degradation and species composition changes. A comprehensive understanding of this process is therefore essential for devising management plans to counteract this vegetation degradation (Okayasu et al., 2007).

Shifts in land tenure policy from communal to individual landholdings and high human population growth rates are some challenges being experienced by pastoral communities in East Africa. The trends show, livestock-to-human ratios have generally declined to levels that will no longer support pure pastoralism. Consequently many Maasai have thus diversified into cultivation, waged labor, and trade. A study in Kajiado quantified that sub-division and fragmentation resulted in substantial reductions in livestock numbers, partially because households have to sell more animals to generate income, with serious long-term consequences on herd sizes and food security. If sub-division therefore occurred, livelihood strategies may need to be modified to maintain current levels of household well-being (Thornton et al., 2006). In South Central Senegal, trends show land devoted to agriculture, either in active cultivation or short-term fallow, is increasing with little evidence of agricultural intensification in most of areas, and extensification coming largely at the cost of reduction in both upland woodlands and riparian forest (Wood et al., 2004). Attempts were made to identify the driving forces of land-use changes in the Mara Ecosystem (Kenya) taking into account the spatial variability of the land-use change processes. Suggestions showed that conversion to agriculture is controlled by the distance to the market, as a proxy for transportation costs, and agro-climatic potential. Land rent defined in this case by proximity to permanent water, land suitability, location near a tourism

market, and vicinity to villages to gain access to social services (e.g. health clinics, schools, local markets), also controlled expansion of smallholder agriculture and settlements (Serneels and Lambin, 2001).

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Chapter 2

Existing pastoralists' institutional arrangements and their dynamic state in the Northern Rangelands of Kenya[1]

Abstract

Socio-economic and ecological challenges create an unstable livelihood systems resulting to chronic poverty in the Northern Rangelands of Kenya. Pastoralist institutional arrangements hinged on communal property right land tenure system are changing to cope, however the type of change and communities perceptions is not clear. Using qualitative and quantitative methods, the study evaluated these changes and communities perceptions on the changes. Findings confirm institutional arrangements are in a dynamic state however new institutions remain hinged on traditional mechanism and communities perceive the change as positive. The finding supports implementation of the Kenya national land policy (2007) and the devolved county government seeking to closely engage communities in land management and development.

Key words; Community Conservancy, Group Ranch, Land Tenure, Northern Kenya Rangelands, Pastoralist Institutional Arrangements

[1] Article submitted to Nomadic Peoples Journal and is currently under review (Authors Caroline Karwitha Kanyuuru, John Mburu and Jesse Njoka

2.1 Introduction

Pastoralism is a key system in most ASALs and is often described as an adaptation to erratic and low level of rainfall (Little et al., 2007). It is argued by many scholars as the most appropriate use of the rangelands in Africa (Scoones, 1995). This is because mobility in pastoral systems enables communities to effectively use the patchy and fragile environment (Nori, 2007). Further, an increase in new research and practice points towards a sustainable development of pastoral communities, through a combined livestock and biodiversity related business. These findings negates the theory suggesting conservation and pastoralism are mutually exclusive, giving evidence that it is possible to achieve conservation objectives through pastoralism (ILRI, 2006). This harmonious coexistence however requires supporting policies to take full advantage of the potential in biodiversity synergy (Notenbaert et al., 2012).

For many Kenyan pastoralists', the ability to manage the environment sustainably has rested in the capacity of their customary institutions to make and uphold rules and sanction breach of those rules. This has however been tested by changes attributable to globalization and climate variability. These have especially challenged existing land tenure systems commonly characterized by common property regimes. The result has been erosion of customary institutions, sub-division of group ranches and even eliminated in some instances, posing a significant threat to sustainable natural resource management. There is no clear evidence on how challenged land tenure systems are affecting the nature of customary institutions in the Northern Rangelands of Kenya, and the new mechanisms communities are putting in place to address this need. This is with a realization that opportunities can be explored to build on existing village-level institutions or new innovative institutional arrangements to develop a participatory

communal resource management system that helps protect the biodiversity and productivity (IUCN, 2011).

Literature is reviewed on how land tenure and land use management has evolved since pre-colonial era citing key drivers of change. It further shows how existing land tenure systems are influencing new institutional arrangements engaged in management of natural resources in the Northern Rangelands of Kenya. Socio-economic development indicators are further used to validate perceptions communities hold on the significance of the existing institutional arrangements.

2.2 Literature review

2.2.1 Evolution of land tenure and land use system in Kenyan rangelands

The colonial administration perceived pastoralism as harmful to the environment and a constraint to social and economic improvement (Woodhouse et. al., 2000). This led to the establishment of the African Land Development Board (ALDEV) in 1945. This was a body tasked with improving carrying capacity of the land, the productivity of cattle, and to control the ecological imbalance usually associated with such fragile ecosystems. The same approach was taken by the post-independence governments leading to the emergence of the group ranch concept in the 1950's (ELCI, 2006). The group ranches were formed and incorporated under the Land Adjudication Act (Cap. 284 of 1968) (Mwangi, 2007). In 2004, there were 401 incorporated group ranches covering an area of about 7 million hectares with a membership of 54,452 members. The ranches were in Narok, Kajiado, Samburu, Laikipia, Baringo, West Pokot, Taita Taveta, Kilifi, Kwale and Lamu Counties (Wayumba, 2004). Formalization of community

decision making structure into group ranches did not work as well as anticipated (Mbote, 2005). This is evidenced by land subdivisions as pressure for land from agricultural communities increased in Kajiado and Narok Counties (ELCI, 2006). Though the initial intention was to avoid the tragedy of commons, the same scenario was created and communities have tried to reconsolidate land again Kibugi, 2008).

In other parts of Kenya, privatization of land came in the form of trust lands under the county councils. This was created through three commissions namely; Ornsby-Gore Commission (1924-1925), Hilton Young Commission (1927-1929) and Carter Commission (1930-1934) (Wayumba, 2004). Although this classification was intended to ensure county councils hold land for the benefit of residents of that land, people have still lived on trust land for generations yet they cannot assert any rights to the land (IUCN, 2011). Trust lands are found in the pastoralist Counties of Turkana, Marsabit, Isiolo, Mandera, Garissa, and parts of Lamu County. Tenure to trust land is however increasingly changing from the trust status to ownership by individuals, legally constituted groups and the state, either for conservation or development purpose (ELCI - 2006). Key problems with this system of community land ownership is vulnerability to interference or setting apart of customary rights by the government, challenges in securing credit and using land as collateral and generally lack of administrative support for customary system of land rights. This makes the position of the occupants vulnerable with corrupt County Council officials and individuals taking advantage of the lack of enforceable customary land rights to grant community land in exchange for money or to bolster their personal power (Kenya Land Alliance, 2007).

Moving forward, a framework for sustainable land use management embracing co-management approaches that factor in participation by the community, government and other significant players is required. The need for reform has now been legally recognized in the new Kenya Constitution (2010), and has also been defined in detail in the new Land Policy 2007. This revised approach calls for establishment of a new category of land in Kenya called community land, where land is lawfully held, managed and used by a specific community. This policy should be coupled with other interventions that promote greater investment in education, infrastructure and more attention to employment creation as progressive development strategies for the pastoral areas (Lesorogol, 2008).

A community conservancy model of land management is emerging and rapidly growing within group ranches and trust land systems in the Northern Rangelands of Kenya. Wildlife conservation has been recognized as a land-use in the Wildlife Conservation and Management Act 2013. Conservancies are further defined as land set aside by individual landowner, body corporate, group of owners or a community for purposes of wildlife conservation (King et. al., 2015). The Kenyan rangelands have the highest population, density and diversity of Kenya's wild fauna (large mammals) with 90% of the over 50 gazetted national parks, sanctuaries and game reserves located within the arid and semi-arid areas (Kigomo, 2001). Most of these wildlife reserves are adjacent to communal lands and most wild species (large mammals) are in between the reserves and the communal land areas (Darryll and James, 1988). This occurrence requires that the community is engaged in wildlife management, firstly to avoid creating antagonism towards the reserves and secondly to exploit the high tourism potential in the county. There is a rapid increase of community conservancies in the Northern Rangelands of Kenya. Good gains

are being realized through the conservancy model, with evidence supporting the model showing improved biodiversity, including wildlife and medicinal plants, lucrative Eco Lodges that provide tourist revenues and employment opportunities. Other development activities supported by the revenue benefits to community conservancies are school bursaries, greater security, improved grazing management, investment in water projects, improved communication and transport facilities (Glew, 2012).

2.2.2 Drivers and effects of land tenure and land use change

The dynamic state of pastoralist institutional arrangements in the dry lands continues to affect pastoralists' forms of land use, lifestyles, natural resource value, composition of the vegetation and animal life. Traditional resource management institutions are evidently challenged in their governance as external forces continue putting pressure on pastoralism to change hence the need to set proper management plans that appreciate the new changes (IUCN 2011). Climate change for instance at local and global level is significantly impacting on the rangelands, but the bigger threat is the convergence of unprecedented levels of land-use change with increasing climate uncertainty (Worden et, al., 2009).

Ten to twenty percent of dry lands, predominantly used for livestock production are already degraded (Millennium Ecosystem Assessment, 2005). This is increasingly spreading and is now a threat to the pastoral production systems causing an increase in poverty and tribal conflicts over resources (Kassahun et, al., 2008). Overgrazing is often a common cause but also the lack of understanding of current socio ecological systems to help identify ultimate and proximate drivers of pastoralist behavior. This makes policy initiatives aimed at sustainability difficult to implement (Harris 2010).

In the article "The law is to blame", Wily (2011) argues a weak legal status of communal rights is a problem that allows governments to exploit citizens' rights and especially those which are unfarmed and by tradition held in common resulting to loss of land of the majority rural poor. Most rangelands are now characterized by a mosaic of co-existing and overlapping claims to resources with weakly defined boundaries and flexibility of rights and negotiations. To achieve a sustainable synergistic relationship between livestock –based livelihoods and environmental health, key issues such as a lack of tenure, promotion of privatization, minimal health, education services, security, rising population and market integration need to be addressed (Aredo, 2004). When confronted by such issues, communal land owners progressively resort to individualization and eventually feel the need to formalize from communal property rights towards private property rights. Unfortunately, most of the beneficial effects usually ascribed to such a reform are grossly over-estimated and, given its high cost, it is generally advisable to look for more appropriate solutions that rely on existing informal mechanisms at community level (Platteau, 1996).

A wave of land subdivision in the Kenya maasai land occurred in the 1980's as a result of strained land rights. This was a way to capture gains in a new property right regime, reduce distributional disadvantages but consequently emerged as a critical defense strategy against internal and external threats to their land claims (Mwangi, 2007). On the other hand, when mobility is curtailed by subdivision, one of the outcomes is sedentarization. A good example is the 75% of the Rendille and Ariaal pastoralist of Marsabit District in Kenya who are in settlements that carry about 40% of the total livestock population. This is largely owed to a Dixey Water Development Scheme of the 1950's, the post-independence Shifta War of 1967 and

the droughts of 1969, 1971, 1973, 1979 and 1984 (Haro, 2006). Impact of land privatization on household well-being in Samburu, Northern Kenya, show few significant differences in wealth and income between privatized and communal land. Crop cultivation however is an added strategy for the privatized areas. Wealthier households relied more on livestock production, exhibited by sales of livestock for income and home consumption of milk while the poorer households depended on employment and trade of agriculture product (Lesorogol 2008).

A new approach that puts an emphasis on new skills and behavior among development partners to support local communities develop capacity to manage their own resources in a sustainable and equitable way is required. Within this approach, the decisions about change and the shape of the new system remain with the stakeholders involved i.e. community, government, elders and other external actors, who have built high levels of trust and social cohesion amongst themselves (Tache and Irwin, 2003).

2.2.3 Institutional arrangements engaged in management in different land tenure/land use systems

Trust lands and group ranches are the common land tenure/use systems in Northern Rangelands of Kenya. These are managed by various institutional arrangements such as elders, group ranch committees or the conservancy boards. Conservancy boards are only in existence within community conservancy set up, elders often cut across trust lands and group ranches whilst group ranch committee are found in group ranches. An example of a well-established and researched on elders system is the Dhedha elders found amongst the borana community. Dhedha elders form key community decision makers and are charged with resource management (land, pasture, water) at the community level. This body is formed by individual elders from different

closely knit households called the “Olla”. The management strategies are guided by an unwritten laid down rules, regulations, norms, values and beliefs (IUCN, 2011).

The GR is managed by a GR committee constituted majorly by key elders in the community but also has representation from women and youth. The committee is put in place through elections that takes place every two years and operate within the mandate of a GR constitution. The group ranch holds an annual general meeting (AGM) to deliberate and make decisions on management of the group ranch.

The conservancy is managed by a democratically elected board which draws its membership from different parts of the GR (IUCN 2008c) and has a good gender representation of elders, youth, women and county councils. The conservancy board employs staff under the day to day management of a conservancy manager. Board members are elected at the AGM and have three year tenure of office. The AGM is held annually and is useful to communicate progress and ensure accountability of conservancy board to its members.

2.3 Methodology

A complete methodology (study area and study design) is discussed in chapter one general methods section.

2.3.1 Conceptual framework

The study is based on the legal, Policy and Institutional framework. The framework suggests that policy needs an enabling institutional environment to formulate and implement it. The legal structures provide the regulatory and fiscal instruments needed to achieve the policy objective

whilst the institutions provide human and technical capacities required to implement activities and programmes related to the policy area (FAO, 2015).

This study hypothesizes that traditional institutional arrangements commonly hinged on existing land tenure systems are challenged in their management capability and are therefore changing to cope with the socio-economic and ecological challenges. The journey to robust institutional arrangement must be cognizant of the rangelands unique and fragile systems. Research to understand challenges and opportunities of changing traditional institutional arrangement, provides evidence base of proposed strategies that demonstrate sustainable impact in the long run to guide policy. The new institutions need to be legally mandated and have capacity to engage community in resource management and economic development. This will attract external actors i.e. state and non-state actors who require a conducive environment to operate (See Figure 3.2.1).

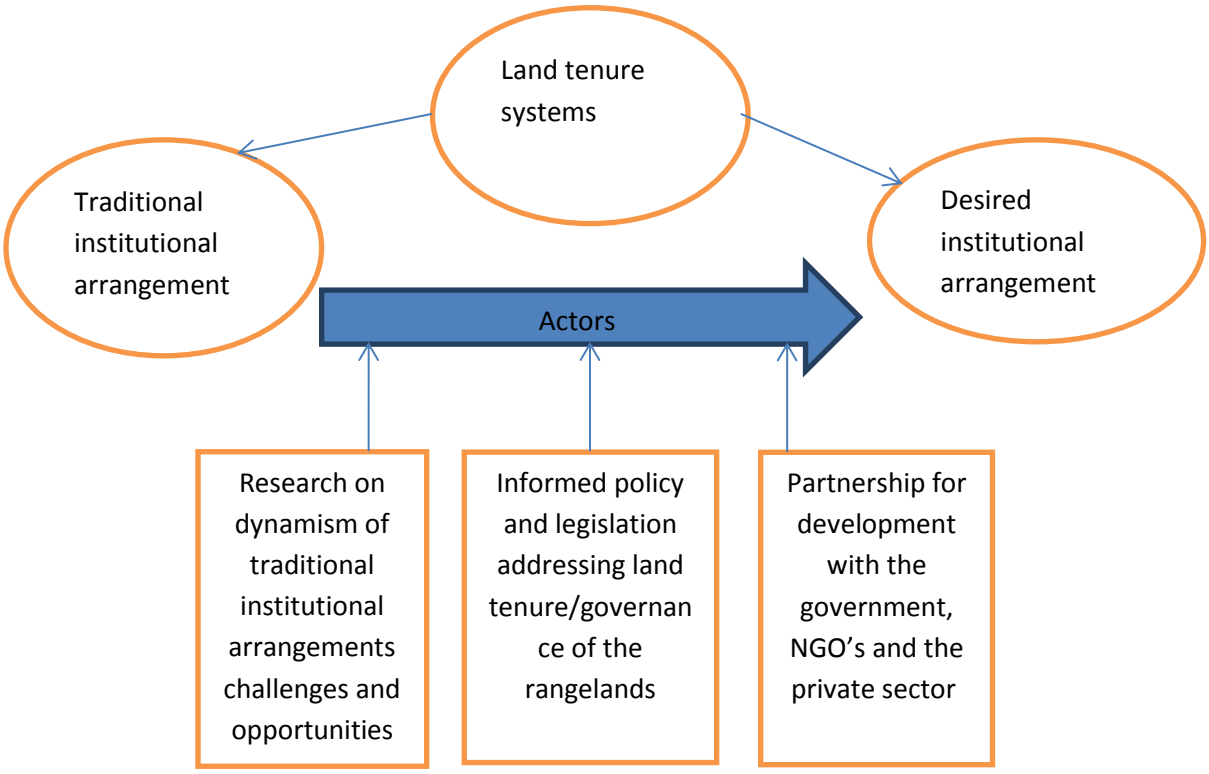

Figure 2:1: - Conceptual framework - Dynamism in pastoralists' institutional arrangements

Source; Authors own conceptualizing (2015)

2.4 Results and Discussion

2.4.1 Land tenure influence on land use institutional arrangements

Two main types of land tenure/land use systems in the Northern Rangelands of Kenya are group ranches and trust lands. A community conservancy is the most recent type of land use and operates within both group ranches and trust land systems. More details of the three are discussed in the literature review. The word conservancy has been previously used in a manner

almost synonymous to wildlife conservation, however this has greatly changed. Communities now see conservancies as a source of empowerment, employment, peace and development. Secondary data gathered on numbers of conservancies within either group ranches or trust land may suggest that the level of flexibility in decision making within group ranches or trust land influences institutional change.

Table 2.1 provides findings comparing the number of conservancies within group ranches and trust lands. These are group ranches and trust lands scenarios within Samburu, Isiolo and Laikipia counties; counties where the study sites were purposively picked from.

Eleven community conservancies were noted within the group ranch system (Laikipia and Samburu Counties), and only three community conservancies within the trust land (Isiolo County). Management of the group ranch is vested on the group ranch committee while management of the trust land is vested on the Dhedha elders with overall authority being the government. Findings show more community conservancies within the group ranch system compared to the trust land system. This may be attributed to a myriad of reasons such as preferences by the organization (NRT) supporting the community conservancy model, the culture of the people, proximity of organizations to the various communities etc. There is however a possibility that findings may suggest a high level of flexibility in community decision making within the group ranch system compared to the trust land system. The argument is group ranch committees have a legal mandate to make decisions on behalf of the group ranch compared to trust land management where government holds land in trust for the community and therefore endorses decisions reached by the Dhedha elders. More research on the key attributors or contributors to this finding would help clearly understand the dynamics involved.

Table 2:1 Land tenure systems vs community conservancy presence

County	Area coverage (Km^2)	Trust land	No. of Group Ranches	No of Community conservancies
Laikipia	9,500	No area under trust land	13	4
Samburu	21000	Complete and ongoing group ranch registration	32	7
Isiolo	25,605	All land is under trust land	0	3

2.4.2 Changes in resource management institutional arrangements

Primary data was used to investigate how land management institutional arrangements are changing in relation to resource management within a time period of 10 years (2002 and 2012) in the study sites. The institutional arrangements at community level are classified as elders (trust land), group ranch committees (group ranches) and the conservancy board (community conservancy). Qualitative data obtained through focused group discussions show elders' class is a scenario where elders are the major players in decision making at the community level. Group ranch committees majorly constitute elders but also constitute youth and women representation. The conservancy boards constitute elders, youth, women, county council representation and other external players such as NGOs who play a facilitatory role. One of the youth in Makurian GR is quoted saying "the elders now believe in the youth and are accommodating their ideas"

Results in Figure 2.2 and 2.3 compare institutional arrangements tasked with resource management in 2002 and 2012. In 2002, elders had a significant role in resource management in all the study sites. The 2012 trends suggest a maintained role in management by elders only in

Kinna (a Trust Land system) and a decline in elders' /interaction amongst actors in Makurian GR and West Gate CC. This concurs with qualitative data that describes the group ranch committee and conservancy boards have more actors (youth, women, county government) interacting.

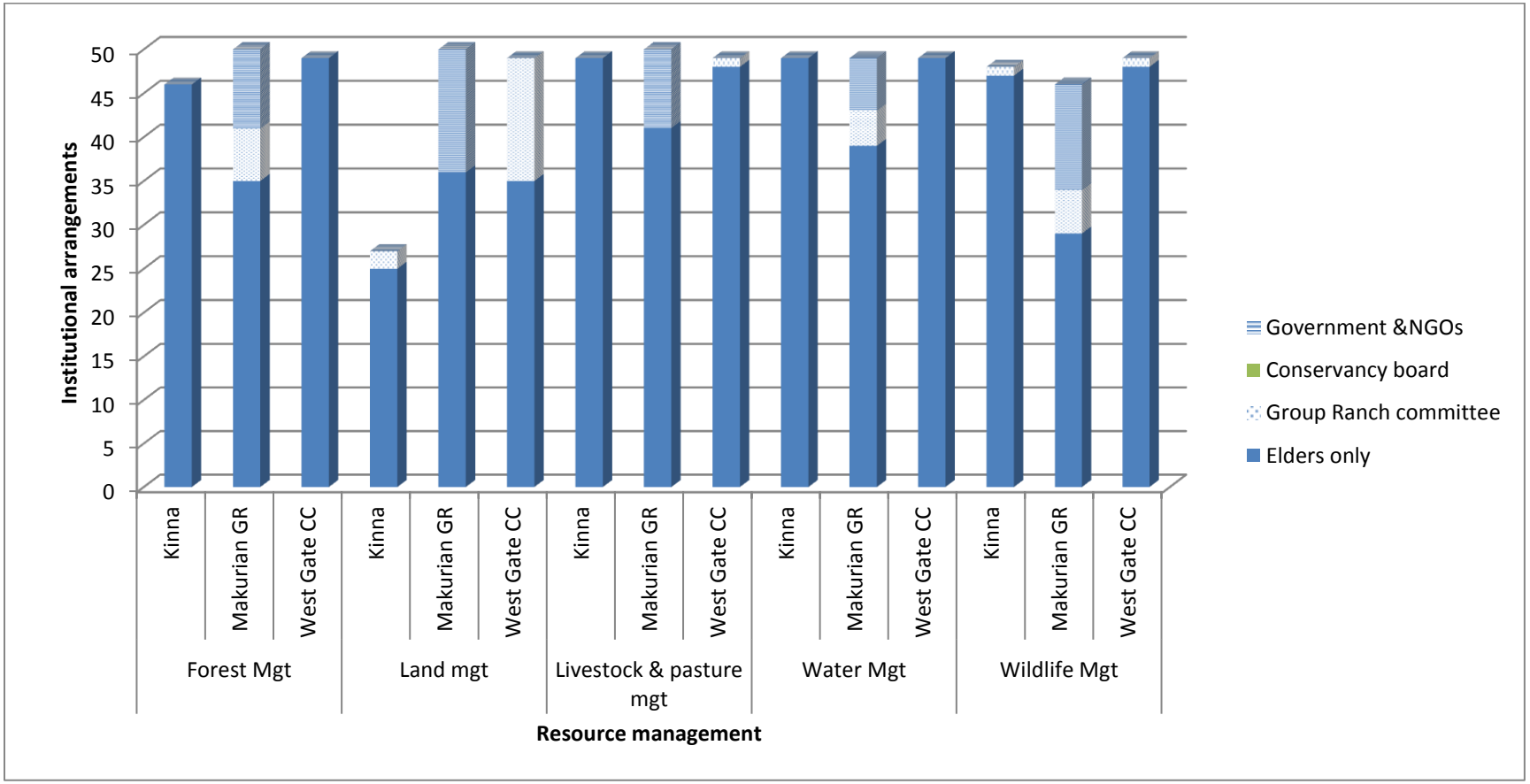

Figure 2:2: Resource management in 2002

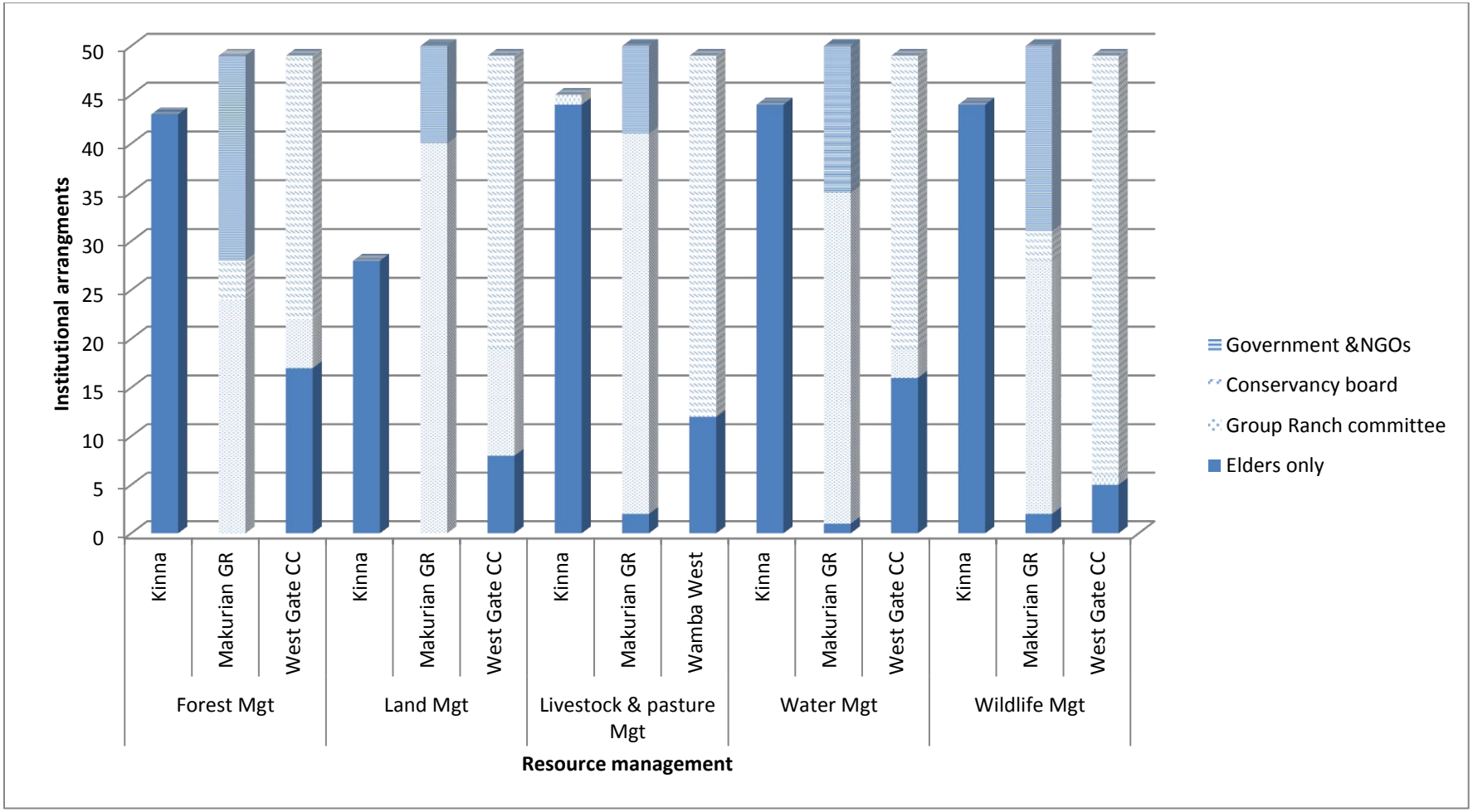

Figure 2:3: Resource management in 2012

Similar results were obtained when a factor analysis was used to identify institutional arrangements domains, revealing three main factors (Table 2.2) and thus explaining 74.7% of the variation of the data. The first factor loading was mainly associated with Institutional arrangements concerned with natural resource management in 2012. The second component is for institutional arrangement involved in natural resource management 10 years ago except for livestock pasture and water management which loaded heavily in the third factor. The factor analysis findings confirm the nature of the three institutional arrangements described through the qualitative data in the study area section. These findings show that institutional arrangements are no longer distinct in their areas of interest particularly in natural resource management meaning there is an interaction. This concurs with study areas descriptions that show distinct elders' presence in Kinna and an interaction of various players both in Makurian and Westgate between the elders and other players such as youth, women, government and other external players (NGOs).

Table 2:2: Institutional arrangements domains in natural resource management (2002-2012)

	Areas of involvement in community matters by Institution arrangement		
	IA involvement in community matters in 2012	IA involvement in community matters 2002	IA involvement in livestock matters 2002
ForestManagement2002	-.016	**.398***	.080
ForestManagement2012	**.198***	.080	-.040
LandTenure2002	**.137***	-.101	-.011
LandTenure2012	**.219***	-.020	-.018
Livestockandpasture2002	-.017	-.011	**.845***
Livestockandpasture2012	**.211***	-.084	.041
WaterManagement2002	-.006	.413	**-.428***
WaterManagement2012	**.212***	.023	-.030
WildlifeManagement2002	-.011	**.397***	.164
WildlifeManagement2012	**.182***	.061	.021

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

A distinct type of management a decade ago and more interactions currently can be attributed firstly to socio-economic and ecological challenges that elders may no longer have capacity to handle on their own. This has required communities to seek strategies that allow them to adapt to the change. The community conservancy model has rapidly grown due to huge support received from the Northern Rangelands Trust (NRT). This is an organization that is promoting biodiversity conservation and economic development in Northern Kenya. This is by supporting communities with capacity on institutional development, fundraising and general oversight on operations of the conservancies.

2.4.3 Perceptions on performance of institutional arrangements

Respondents were asked to rank the institutional arrangements active in their areas using six socio-economic development indicators namely; transparency, participatory, equity, market creation, partnership and effectiveness. These were ranked using the codes one=bad, two=average, three=good. Results in Figure 2.4 only report for the code good and this is purposively to establish if trends discussed in the previous section are perceived positive or negative. Findings show that the group ranch committees and the conservancy board management operating in Makurian GR and West Gate CC were generally ranked higher in all the socio-economic indicators compared to the elders' management in Kinna. This finding suggest communities positively perceive the trends indicating a moving away from management by elders alone to a scenario where elders are engaging other players (youth, women, government and NGOs) presented in both group ranch committees and community conservancy boards.

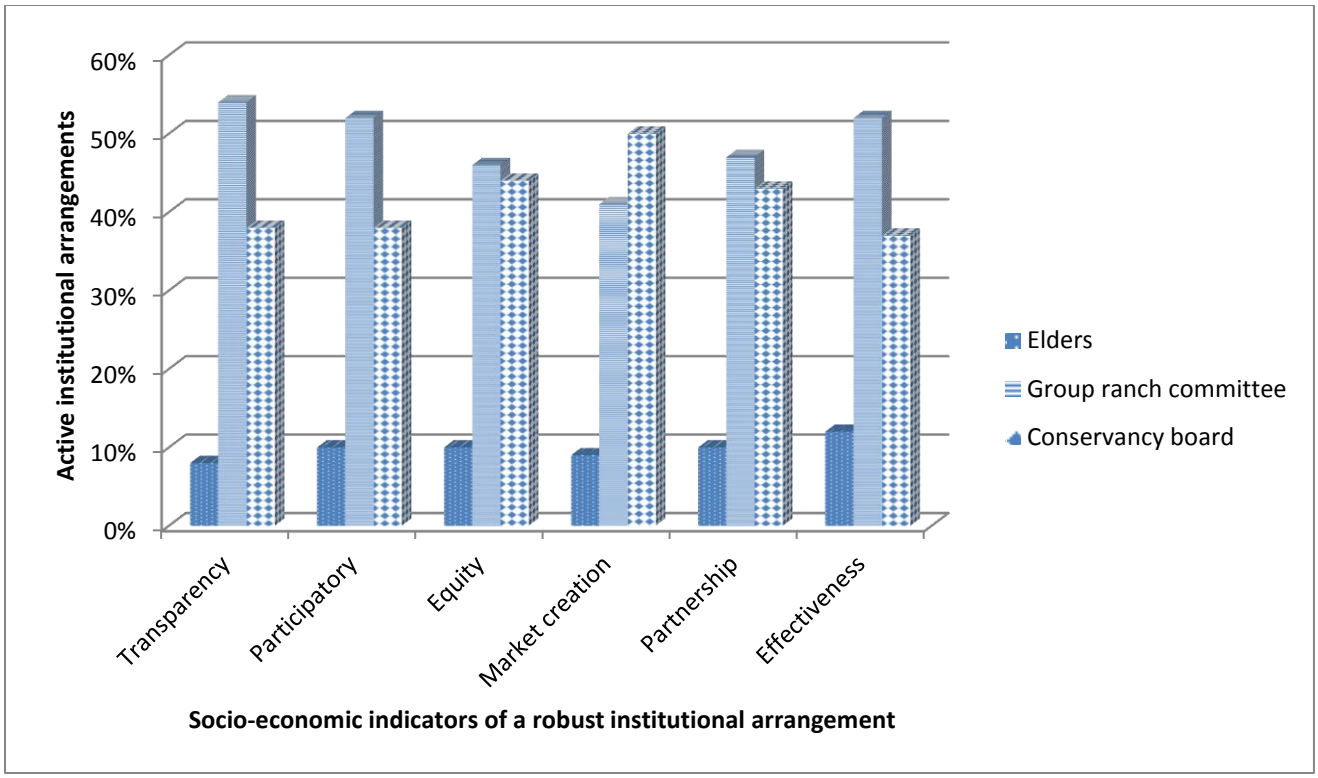

Figure 2:4: Community perceptions on governance attributes

2.5 Conclusion

Land tenure/land use systems have been evolving since pre-colonial to post-colonial era and so has been the land management in the various tenure systems. The trend has inclined towards achieving privatization to allow some level of efficient management resulting to current trust land and group ranches systems. Both have been challenged in management with Group Ranches struggling to hold together while bureaucracy in trust land system slows decision making due to the County governments authority on the land.

The study sought to understand changes in the traditional institutional arrangements responsible for resource management in the Northern Rangelands of Kenya and the influence of the land

tenure/land use system in these changes. Results indicate that communities are moving away from a pure dependency on elders in resource management. This is largely attributed to lack of capacity by elders to address new challenges in the socio-economic and ecological systems. The trend is especially notable in areas where communities have the ability and flexibility to make decisions pertaining to the management of their land resources as is the case in Group Ranch Systems as opposed to the trust land. The emergence of a hybrid type of institutional arrangement is notable in the form of a community conservancy model managed by conservancy boards. This institutional arrangement has mushroomed faster in the Group Ranch set up compared to the Trust Land set up, possibly contrasting the flexibility in decision making between the two. The community conservancy model is taking a co-management approach that engages elders, youth, women, government and other key players in decision making and operations. It is however hinged on the existing land tenure/land use system (group ranch and trust land).

Findings indicate a growing trend of various parties working together, a trend that is critical to improve governance and stir development in communities that have been economically marginalized for a long time. The findings in this study are useful as the new devolved county government seeks to explore how to engage the community in county plans and in the implementation of the Kenya National Land Policy. The policy addresses land issue in the country and one of its provisions is to add a category of land called the community land. This is very relevant for the Northern Rangelands of Kenya where communities operate under a common property regime. The Kenya wildlife bill which was recently passed will also hopefully support the legislation and implementation of the community conservancy institutional

arrangement in order to support complementarity of livestock and biodiversity related strategies in the development of the Northern Rangelands of Kenya.

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Chapter 3

Economic value of ecosystem services benefits across different pastoralist institutional arrangements in the Northern Rangelands of Kenya[2]

Abstract

Northern Kenya Rangelands support a rapidly growing human population resulting from internal growth and immigration owing to its numerous and diverse goods and services. Communities in the rangelands are however grappling with poverty as they remain economically marginalized due to a lack of understanding of the value of the rangelands and how management of the rangelands can influence this value. An ecosystem service valuation approach is rapidly growing in the area of sustainable land use practices, however has not been largely applied in the rangelands due to the complex nature of the system and insufficient data. This paper compares economic values (household and communal revenues) of ecosystem services benefits across different pastoralists' institutional arrangements (elders only, Group Ranch committee and Community Conservancy boards) in the Northern Rangelands of Kenya. Findings suggest that marginalized communities positively view hybrid institutional arrangements hinged on traditional mechanisms and consistently attracting strategic partnership as a result of their ability to offer risk management strategies. The findings offer insight in implementation of the Kenya constitution 2010 and specifically the national land policy, 2007 and Kenya Vision 2030.

Key words; Community Conservancy, Direct and Indirect values, Ecosystem service valuation, Group Ranch, Northern Rangelands of Kenya, Pastoralists Institutional arrangements

[2] Article submitted to International Journal of Biodiversity Science, Ecosytem Services and Management (Authors Caroline Karwitha Kanyuuru, John Mburu and Jesse Njoka)

3.1 Introduction

Kenya rangelands have relatively low-density human population, low rainfall and primary rangeland productivity levels (Republic of Kenya, 2005). These ecosystems support pastoral systems, which beyond being simply a model of livestock, also support 100-200 million pastoralists globally, excluding agro pastoralists, a vast majority who are poor. Pastoralism is a system of adaptation to the unpredictability and low level of rainfall. It is characterized as a predominantly livestock-based production system that is mainly extensive in nature and uses some form of mobility of livestock, regardless of the extent to which it contributes to the household economy (Little et al., 2007). Climate, environment, water, other natural resources and geographical area dictate the kind of livestock kept, and may include camels, goats, sheep, yaks, horses, llamas, alpacas, reindeer and vicunas (IUCN 2011).

Pastoralists are commonly found in common property regimes and have therefore over time developed mechanisms that help them adapt and maintain an ecological balance between themselves and the natural environment, commonly unpredictable, vulnerable and dynamic (Rota, 2009). Property rights in most African rangelands are characterized by overlapping rights resulting from complex interrelations between the individual rights and the right holders (Hodgson, 2004). The institutional environment under which rural producer operate is key because governance of property rights influences rural producers' choice of production practices and outputs (Barrett et al., 2002). In Ethiopia, for instance, land tenure security was directly correlated to practices rural producers employed and the yield returns from these practices (Holden and Yohannes, 2001). Similarly, research by the poverty and environment network (PEN) demonstrates that land tenure and user rights influence household incomes (Jagger et al.,

2014). Local institutional arrangements[3] in Northern Kenya are hinged on the type of land tenure systems and have been dynamic since the pre-colonial period. Post-colonial saw the emergence of group ranches and trust lands, and the last decade has seen a rapid growth of community conservancies.

Rapid population growth in the rangelands resulting from internal growth and in-migration from "higher potential" areas partly contributes to ecological degradation by exacerbating drought occurrences. The problem however is beyond population because drought regularly advances to famine and the underlying issue has been thought to stem from poor risk management and resilience strategies, coupled with policy failure (Barrow and Mogaka, 2007). Pastoralism development policies in general have been determined on the basis of traditional economic models. However to be effective, new thinking must explore synergy in interactions of the environmental and economic systems (Farber et al., 2006). Setting up policy will therefore require open minded policy makers and politicians who are not driven by narrow self-interested motives but who have a broader understanding of the root problems and the value of ecosystem services in the rangelands (Webster, 1999).

3.1.1 Ecosystem services valuation approach

Ecosystem services are the aspects of ecosystem services utilized for human well-being (Hassan et al., 2005). Degrading ecosystem services are a threat to sustainable dependency on the environment for livelihoods. This has brought to the fore the importance of an ecosystem

[3] Institutional arrangements describe the particular set of rules and structures governing the allocation and exchange of resources in and through specific transactions (Dorward et al., 2009).

services approach as a tool for that gives more attention to natural resource management and infrastructural planning (Daily et al., 2009). Millennium ecosystem assessment (2003) classifies ecosystem services into provisioning, regulating, cultural and supporting. A different classification considers the relationships between various types of services to give ecosystem services a form of hierarchy. This classification separates ecosystem services into resource fluxes across landscapes (Landscapes distribute sediments, nutrients and rainwater over soils, surface (rivers, ponds) and ground water), intermediate services (Flood regulation, services erosion control, natural filtration,) final services (climate regulation, wildlife species, trees and shrubs, livestock and crops) and final benefits (tourism, wood and fibers, food, assets, cultural identity, drinking water and domestic water) (Fisher et al., 2009).

The poverty versus prosperity debate amongst pastoralists needs to appreciate pastoral commoditization, its impact on wealth and livelihood levels. This will give insight into the changing position of pastoral livelihood in relation to the wider economy and society, the risks attributed to market behavior and natural risks, and the long term trends of income and wealth amongst pastoralists (Zaal and Dietz, 1999). This is because rangelands are a source of numerous services and products such as biodiversity, tourism and raw materials but they still record a high poverty index. The goods and services are often not measurable but where they are measurable there is tendency to underestimate their value (Hatfield and Davies, 2006). There is growing interest in the ecosystem services valuation approach in natural resource management (O' Farrell et al., 2011). Despite this growth, arid and semi-arid areas commonly viewed as marginal in productivity, have received less attention (Naidoo and Iwamura, 2007). These areas are excluded because past studies have focused on areas with existing data and knowledge (Nelson et al.,

2009). Most goods and services provided by pastoralist systems have therefore been priced zero because they are not captured in national accounts due to their public goods characteristics and market failures (Rodriguez, 2008). The ability to present complex ecological interactions in a single common currency allows decision makers to better evaluate the tradeoffs between different services and gives a better understanding of the importance of ecosystem services (Ash et al., 2009).

Methods used in ecosystem valuation are divided into three broad categories i.e. revealed preference method, stated preference method and benefit transfer methods. Revealed preference methods are used where conventional or proxy market prices exist. Revealed preference methods may be relatively objective and accurate; however they have limitations such as being data intensive, market imperfections and policy failures that do not allow the true value of goods and services be reflected in the market transactions. Stated preference method is based on direct elicitation of the value people are willing to pay (WTP) for the service offered by a biodiversity resource or are willing to accept (WTA) compensation for loss of an ecosystem service (Mburu et al., 2003). Benefit transfer approach on the other hand, refers to use of values of ecosystem services transferred from studies carried out elsewhere i.e. studies valuing tourism which can be assumed to provide a value for pastoralist related tourism (Australia Government, 2005). Key challenges in valuing ecosystems are their complex and nonlinear behavior, as well as high dependency on social and environmental factors (Norgaard et al., 2007). Other challenges include ethical concerns on the use of monetary value in valuing environmental impact and accuracy of some methods applied. To streamline these into government priorities, decision makers influencing policy need to better understand the value of ecosystem services in the

drylands and how to estimate them. Further research and better communication amongst the stakeholders will improve awareness on the role of environmental valuation in the society (Australian government, 2005).

The objective of this paper is to evaluate economic values of ecosystem services across different pastoralist institutional arrangements such as elders only, group ranch committee and community conservancy board types of management in the Northern Rangelands of Kenya. This is achieved by collecting information on revenues of ecosystem services that have a market price (use of revealed preference method of economic valuation) at both household and communal levels. Findings are anticipated to provide evidence that is useful in rating effectiveness of pastoralists' institutional arrangements using economic values as an indicator of economic development.

3.2 Methods

Details of the study area and study design are discussed in Chapter 1, general methods section.

3.2.1 Conceptual and theoretical framework

Total Economic Value (TEV) is a framework used in ecosystem valuation and provides a better picture of the impact and value of drylands by measuring market and non-market values people hold for a given sector. It provides an aggregation of the main values or benefits provided by a given ecosystem, including use and non-use values (Hesse and Macgregor, 2006). For pastoralist systems, TEV components are categorized in four groups; direct, indirect, option and existence values. Direct values are generally referred to as goods and services provided by pastoralism and can be either consumptive or non-consumptive (milk, meat, skins and pasture). Indirect values

are obtained from services pastoralist systems provide that have benefits outside the system itself. Examples are inputs of pastoralism to agriculture, tourism and environmental services. Option values are derived from preserving the option to use in future, goods and services provided by pastoralism that may not be used now by one self (future option value) or future generations (bequest value). Existence value refers to those values derived from the enjoyment people can experience by knowing that a good or service derived from pastoralism exist even if they never expect to use that resource directly (Hatfield and Davies, 2006). Total economic value is then estimated by summing up the different value categories e.g. direct, indirect, option and existence. One should consider that components are not mutually exclusive and therefore values should not be double counted (Jones et al., 2002).

Total Economic Value framework majorly focuses on direct and indirect values of pastoralism because option and existence values are difficult to quantify and hard to transform into practical policy tools. Also availability and quality of data is poor, with many informal transactions in pastoral systems occurring, but also due to the scarce and predominantly qualitative data on indirect values and information about the option and existence values of pastoralism usually not available. Despite the theoretical and methodological limitations of valuation studies, an estimation of the TEV of pastoralism is useful to provide support to the argument of pastoralism as a viable and sustainable resource management system (Rodriguez, 2008). Total Economic Value framework is commonly used to capture and order data and information which is then used to enrich other widely used analysis such as the cost benefit analysis (Zander, 2005).

The study uses TEV framework (Hesse and Macregor 2006) to evaluate how economic values (direct and indirect values) are differing across different types of institutional arrangement

(Figure 3.1). Direct and indirect values are categorized as ecosystem services benefits obtained from the ecosystem services (Fisher et al., 2009). Key institutional arrangements investigated are those engaged in management in various land tenure system. A trust land system is commonly managed by the elders but the government legally holds land in trust of the people. A group ranch system is a legal entity and is managed by a group ranch committee and holds overall mandate over resource management. The committee constitutes the elders but youth and women have been incorporated in the committee. The community conservancy is the latest development in terms of institutional change. It is managed by a conservancy board that is made up of the elders, youth, women, county council representatives and facilitated by external partners such as NGOs. Direct value is calculated as total collection from transactions of goods and services at household level while the indirect value is calculated as total collection from goods and services transacted at a communal level and indirectly contributing to the households.

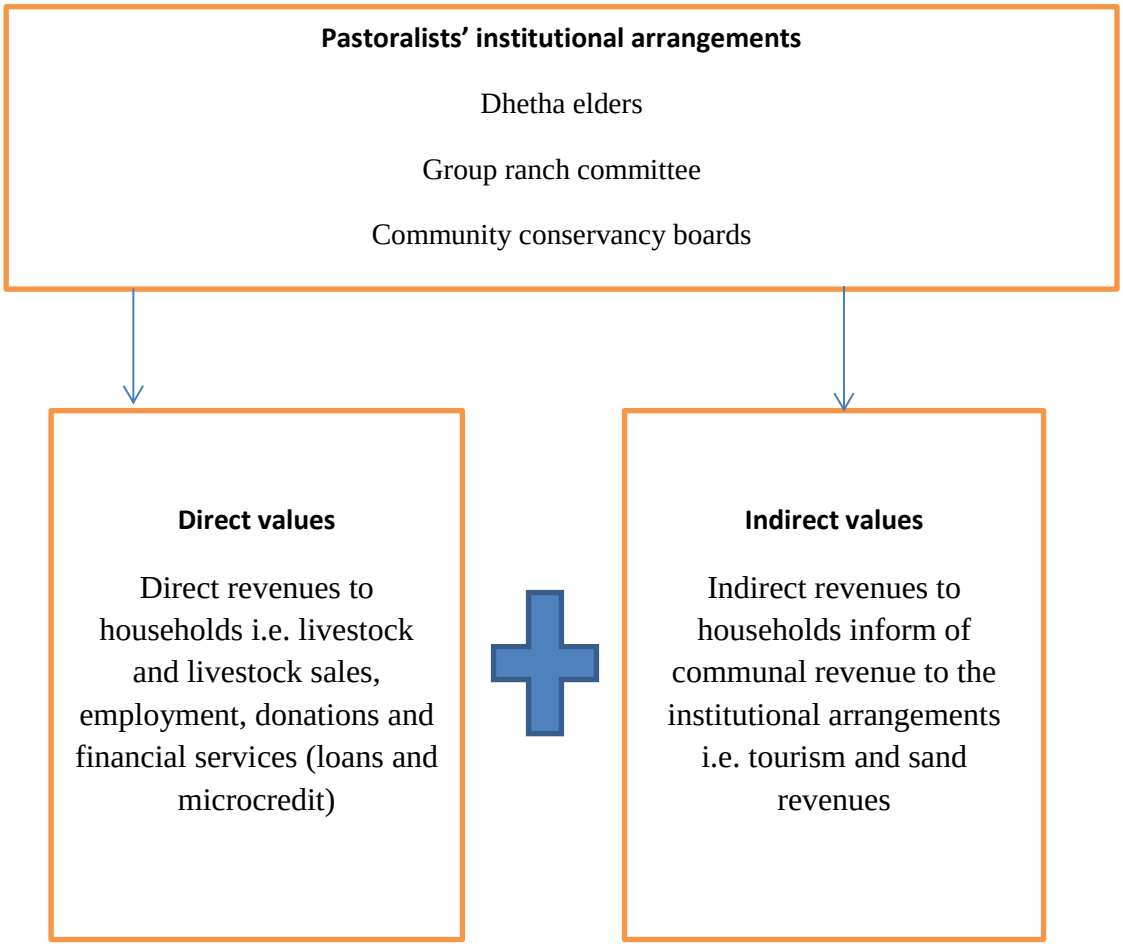

Figure 3:1: Conceptual framework contrasting economic values across different pastoralists' institutional arrangements

Source; Adapted from TEV framework of MacGregor and Hesse (2006)

The type of data collected was grouped into two key components; the institutional arrangements responsible for resource management and revenue collected from goods and services transacted at a household and communal levels. In the first component, respondents were asked to name the institutional arrangement that is engaging the community in managing key resources i.e. forest, land, water, wildlife, land and pasture in 2002 and in 2012. The time period is applied because

notable change is estimated to have occurred in the last decade characterized by an increase in community conservancies within group ranches and trust land tenures. To obtain economic values the revealed preference method of economic valuation was used therefore existing market prices were used. Respondents were asked to state type of goods they sold monthly at a household level, quantities and the price. Annual total collection was obtained by multiplying monthly total collection by 12 months. Household data was collected for 2012 however 2002 data on quantities sold was also obtained in instances where respondents could recall. The assumption here is that target respondents who were household heads and whose age averaged 44- 47 years gave a fair estimation of the institutional arrangements that governed resource management and what they were able to sell 10 years ago. Also, communities in Northern Kenyan rangelands do not keep records of their transactions. 2002 data where available will be useful to validate observations made in 2012 in relation to the changing institutional arrangements and revenues collected. Prices quoted for 2012 were used to calculate total collection both for 2002 and 2012 quantities. Data on total communal revenue collected was obtained from institutional arrangements financial records.

Descriptive statistics are used to show the socioeconomic characteristics of the households. Further, results obtained in chapter two using factor analysis to identify institutional arrangements domains was used in econometric analysis to understand the relationship between the institutional arrangement and total revenue collected at household and communal levels.

The empirical model used is;

$$Y = ia + hhc + e$$

Y=household welfare measured by the household, ia = institutional arrangements OR communal revenue attributed to the IA activities, hhc = household characteristics, e=error

The factor analysis revealed three main factors (Table 3.1) explaining 74.7% of the variation of the data. The first factor loading was mainly associated with Institutional arrangements concerned with natural resource management in 2012. The second component is for institutional arrangement involved in natural resource management 10 years ago except for livestock pasture and water management which loaded heavily in the third factor. The factor analysis findings confirm the nature of the three institutional arrangements described through the qualitative data in the study area section. Findings show that institutional arrangements are no longer distinct in their areas of interest particularly in natural resource management and so there is an interaction. This concurs with study areas descriptions that show distinct elders presence in Kinna and an interaction of various players both in Makurian and Westgate. The first factor was further used as an explanatory variable in the analysis of direct value (household revenue) for 2012 to assess the importance of institutional arrangement involvement in natural resource management to total revenues at household.

Table 3:1: Institutional arrangements domains in natural resource management (2002-2012)

	Areas of involvement in community matters by Institution arrangement		
	IA involvement in community matters in 2012	IA involvement in community matters 2002	IA involvement in livestock matters 2002
ForestManagement2002	-.016	**.398***	.080
ForestManagement2012	**.198***	.080	-.040
LandTenure2002	**.137***	-.101	-.011
LandTenure2012	**.219***	-.020	-.018
Livestockandpasture2002	-.017	-.011	**.845***
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WildlifeManagement2002	-.011	**.397***	.164
WildlifeManagement2012	**.182***	.061	.021

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

3.3 Results

3.3.1 Socio-economic household characteristics

Significant difference in literacy levels in the three sites (p=0.001) is noted in Table 3.2. Highest levels of illiteracy were reported in West Gate CC (85%), followed by Makurian GR (69%) and finally Kinna (41%). Westgate CC community still highly value pastoralism as evidenced by 96% of HHH relying on livestock rearing, 74% in Makurian GR and only 59% in Kinna. Kinna presents a diversified livelihood system as evidenced by crop farming and high permanent employment rates. Two rivers in Kinna and a spring are a source of water thus explaining why crop farming is an alternative.

Table 3:2 Household socio-economic characteristics

	Education Level (%)				HHH occupation (%)				
Site	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**5**
Kinna Division	41	37	16	6	59	2	14	4	20
Makurian GR	69	18	8	4	76	6	4	2	10
West Gate CC	85	13	2	0	96	0	2	0	2

Education levels; 1=No school, 2=Primary, 3=Secondary, 4=Tertiary

HHH occupation; 1=Livestock rearing, 2=Herding, 3=Permanent employment, 4=Casual employment, 5=Other small businesses

3.3.2 Direct values

Direct values are categorized as revenues obtained by households from sale of goods and services and other direct sources of funds to households such as employment, donations and

financial services (loans and microcredit). Livestock remains central to pastoralist household subsistence, wealth accumulation strategy and plays a critical role in maintaining social relations. This is evident from the results in Figure 3.2 showing that the highest number of households traded in livestock compared to other products. To calculate direct value (household revenue), only revenue from the livestock and livestock products sales in Figure 3.2 is used because it is a direct benefit from the ecosystem services.

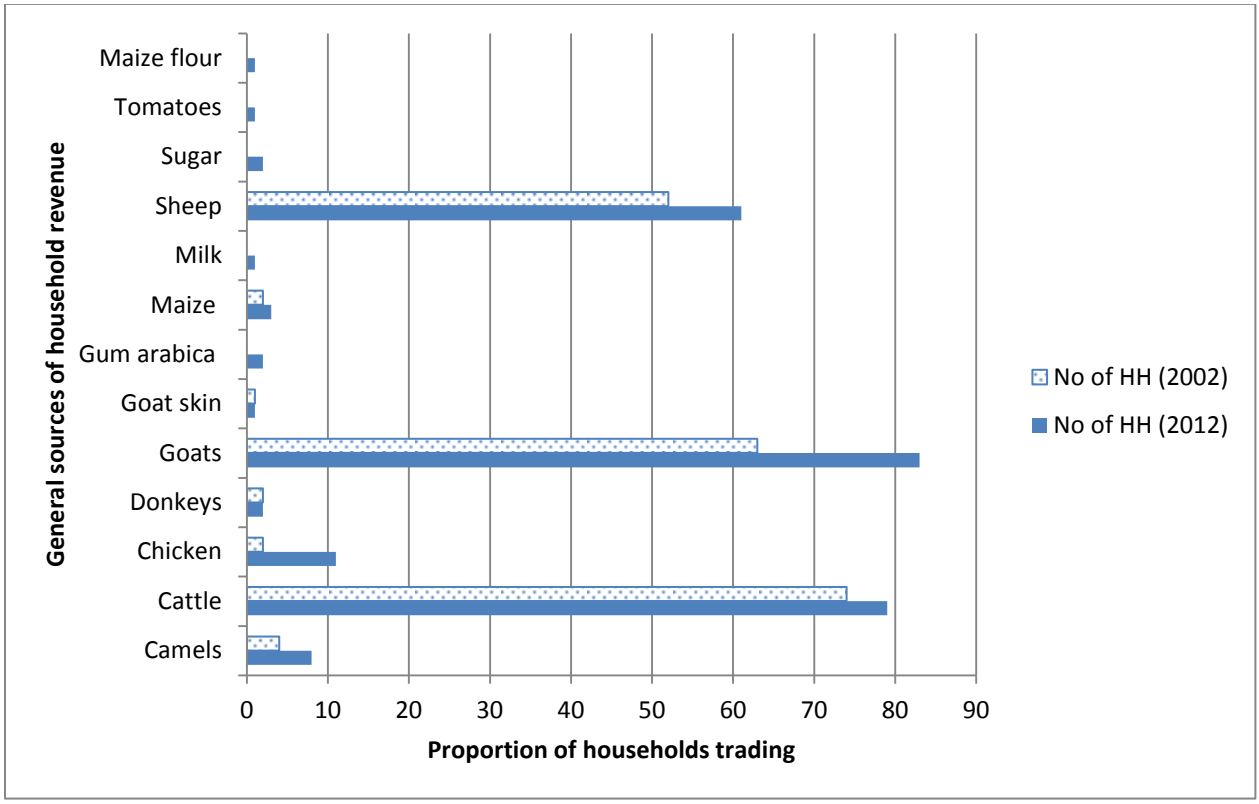

Figure 3:2: Sources of household revenue and proportion of households participating in trading

3.3.2.1 Livestock and livestock products revenue collection

Livestock and livestock products sales for years 2002 and 2012 were compared across the three sites, Kinna (elders), Makurian (group ranch committee), and WestGate (Community conservancy board) (Figure 3.3). In 2012, highest livestock and livestock products sales were noted in Makurian (Kshs. 7.7M), followed by West Gate (Kshs. 5.2M) and finally Kinna (Kshs.3.2M). In 2002, highest livestock and livestock products sales were still noted in Makurian (3.9M), followed by Kinna (1.5M) and lastly West Gate (1.2M). The highest increase in sales between 2002 and 2012 was noted in West Gate (77%), while Kinna and Makurian GR recorded an increase by 52% and 50% respectively. High livestock and livestock products sales noted in Makurian GR is likely to be attributed to a lucrative livestock market fueled by traders from Nairobi and the neighbouring towns as a result of Makurian close proximity to Nanyuki. The ongoing construction of Isiolo-Marsabit highway may have contributed largely to the high increase in livestock sales between 2002 and 2012 in West Gate by providing access to the previously marginalized areas.

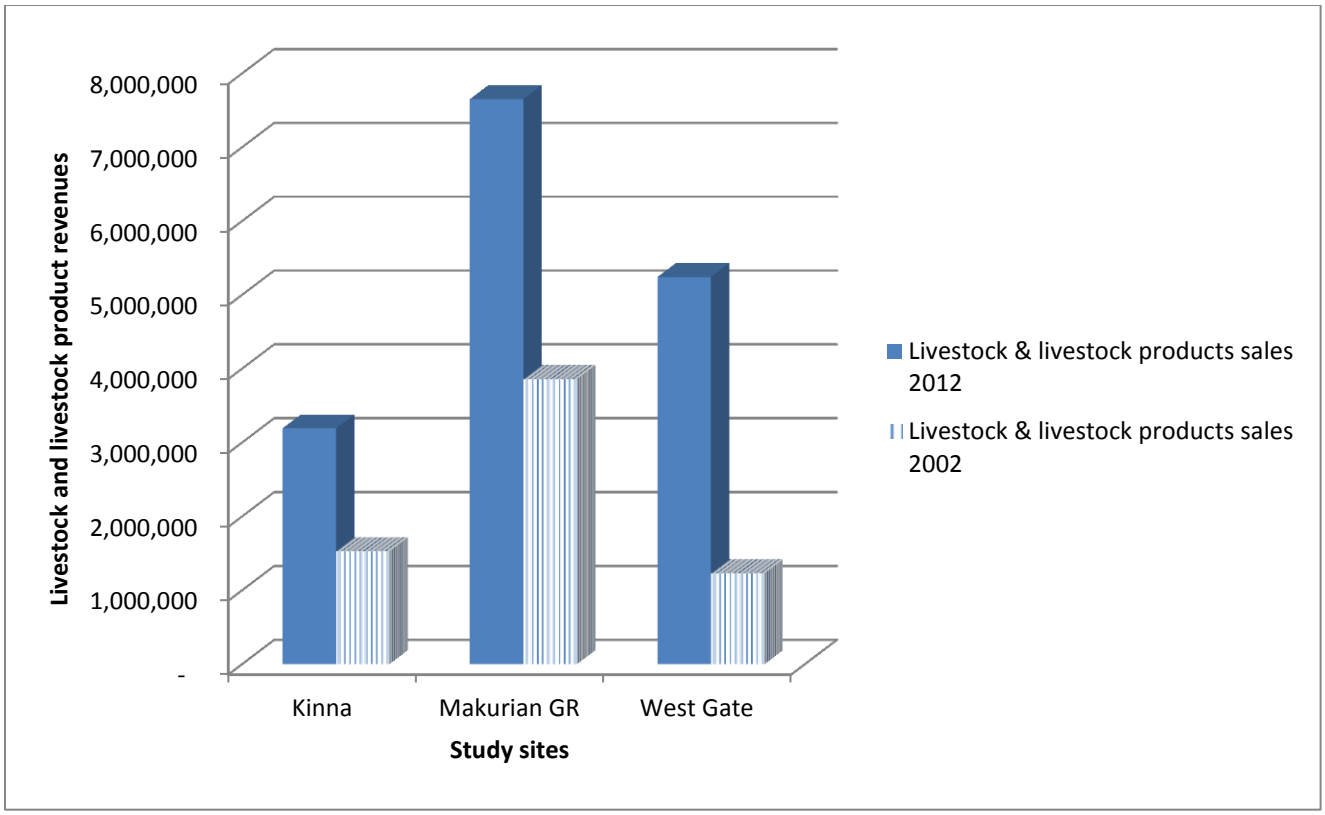

Figure 3:3 Livestock and livestock products revenues, 2002 and 2012

Proportion of households trading in various livestock and livestock product in 2012 is detailed in Table 3.3. Results confirm that pastoralist keep a variety of species (cattle, camels, goats sheep and donkeys) as a herd diversification strategy useful in risk management (Opiyo et al., 2011). This was more evident for Westgate community, a finding that concurs with household socioeconomic characteristics (Table 3.2) pointing to a pastoralism livelihood system in Westgate. A higher number of households trading in camels is noted in Westgate. Camels are hardier livestock species and are mostly kept in harsh climatic areas as is the case for Westgate located in a much drier zone than Kinna and Makurian. Camel species are also high value species and are often associated with wealthier households in a pastoralism context. This further confirms the pastoralism livelihood in Westgate and their wealth accumulation through livestock.

Table 3:3 Proportion of households engaged in trading key livestock and livestock products in 2012

Livestock and livestock products	Kinna	Makurian	Westgate
Camels	0%	0%	16%
Cattle	70%	56%	76%
Sheep	12%	68%	56%
Goat	40%	64%	88%
Chicken	2%	20%	2%
Donkeys	0%	0%	20%
Goats skin	0%	0%	2%
Milk	52%	2%	2%

Households trading in cattle and goats were more consistent in the three sites though Westgate recorded slightly higher household's numbers. More households trading in cattle in Westgate despite its far proximity to an urban center and thus less access to a market may be attributed firstly to its dependence on pastoralism as a livelihood strategy, but also to a robust institutional framework that offers a collective action and allows for external partnerships. Westgate currently enjoys a cattle market from the Northern Rangelands Trust organization. Communities supporting biodiversity conservation are given a quota to sell cattle depending on how well they perform on biodiversity conservation indicators such as grazing and wildlife management. Households trading in sheep were consistent in Westgate and Makurian though Makurian recorded higher numbers whilst Kinna recorded much lower households than the two. Higher households trading in sheep in Makurian may be attributed to the fact that households in

Makurian not only keep higher numbers of sheep but also enjoy access to a lucrative market as a result of their close proximity to Nanyuki town situated 50kms away from Makurian. Donkeys are commonly used for transport in areas where there is no access to transport. Highest households trading in donkeys were observed in Westgate. This could be an indicator of poor road infrastructure as a result of possible economic marginalization.

Most pastoralists' communities especially those in marginalized areas, commonly use milk for subsistence purposes, owing to fewer choices of food available for consumption. Households trading in milk were only reported in Kinna. Kinna households are practicing mixed farming as evidenced by records of households selling tomatoes and maize. This suggests that most households in Westgate and Makurian use their milk for subsistence unlike Kinna households who have more options for food source. Further, Makurian recorded a higher number of households trading in chicken compared to Kinna and Westgate. Commonly pastoralist communities do not highly value chicken as a food source. Makurian however has close proximity to Nanyuki town; a cosmopolitan town characterized by a diverse ethnic community (Samburu, Maasai, Kikuyu, Meru and Turkana). The high number of households selling chicken in Makurian may be attributed to high chicken demand by the non-pastoralist communities living in Nanyuki. This finding could also suggest that pastoralist communities are exploring chicken meat and eggs as a source of food however more research would be useful in understanding this dynamic.

3.3.2.2 Other direct sources of funds to household

Other sources of funds to households are compared across the sites in Table 3.4. Households with highest permanent employment numbers were recorded amongst Kinna households members compared to Makurian and Westgate. This concurs with findings in Table 3.2 showing higher employment levels for household heads in Kinna, who consequently were more literate. Results of higher literacy levels in Kinna may further explain why fewer household members are practicing pastoralism suggesting a possible pastoralism drop out. The rationale is educated households members often times prefer to look for white collar jobs rather than continue practicing pastoralism. On the contrary, other practical instances show employed household members investing some of their employment revenues into restocking and therefore own larger herds of livestock than the unemployed household members.

Table 3:4 other sources of funds to households

Other sources of funds	Kinna	Makurian	Westgate
Casual employment	17%	27%	26%
Permanent employment	46%	27%	24%
Donations	3%	0	0
Family remittance	6%	0	0
Loan	0	20	7%
Government remittance	29%	7%	10%
Merry go round	0	13%	0
NRT micro credit	0	0	24%
Tourism donations	0	7%	10%
Total	**100**	**100**	**100**

More households in Kinna were noted to have permanent employment compared to Makurian, however higher average incomes were recorded in Makurian than Kinna (Figure 3.4). Better average incomes in Makurian mean better quality jobs and would be largely attributed to Makurians' proximity to an urban center (Nanyuki). Westgate had the lowest permanent employment rates, however it is worth noting Westgate recorded close casual employment numbers compared to Makurian despite their huge difference in proximity to an urban center. The type of casual employment in West Gate involved clearing of *acacia reficience*, re-seeding activities, airstrip and road repair and were offered to the households by the community conservancy. The clearance of acacia refecience and re seeding activities is specifically part of a holistic rangeland management programme facilitated by the Northern Rangelands Trust (NRT) and Grevy Zebra Trust (GZT) organizations. The aim of the programme is to rehabilitate degraded land by using animal impact as a tool. Again, the effect of an institutional framework that is robustly engaging the community is demonstrated here by Westgate conservancy.

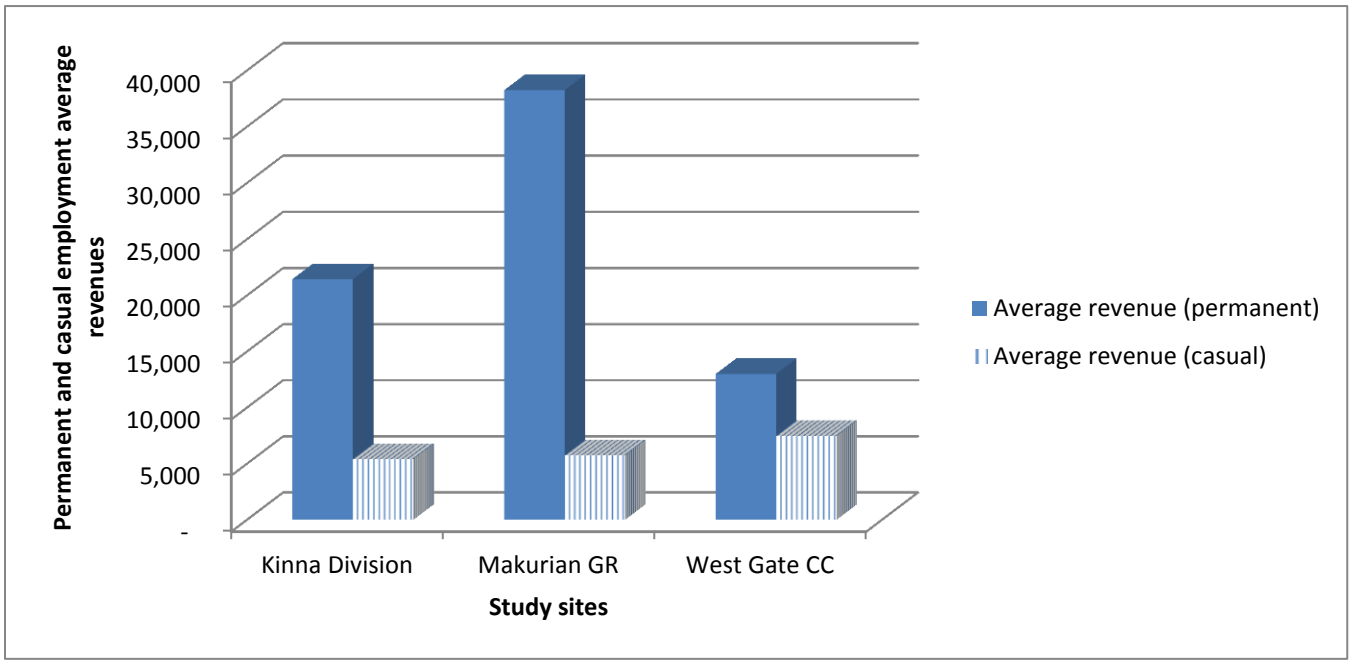

Figure 3:4 Employment average incomes across different institutional arrangements

Financial services were recorded in Makurian and Westgate but the type of financial services differed. In Makurian, more households received bank loans and few others were engaged in merry go rounds, whilst in Westgate, households received microcredit funds. The findings reveal the impact of close proximity to an urban center on access to financial services thus explaining the higher number of households obtaining loans in Makurian. Westgate on the other hand received microcredit funds from the Northern Rangelands Trust micro credit programme. NRT is an umbrella organization of community conservancies in Northern Kenya promoting biodiversity conservation and economic development. Westgate is one of the community conservancy obtaining support from NRT and this ability to access financial services within its remote proximity demonstrates an institutional framework strength that allows external partnership to address economic challenges. Islam religion does not advocate for financial services that accrue interest and since Kinna host a Muslim community, this may further explain why financial services were not recorded.

Government remittances were recorded highest in Kinna. This would largely be attributed to the trust land tenure system where government holds land in trust of the people and is thus compelled to provide funds to the very poor households. Family remittances also noted in Kinna indicate poor families' dependency on other family members for daily living allowances. Westgate is the only site of the three that is engaged in tourism related activities as evidenced by source of tourism donation as an indicator.

3.3.3 Indirect values

Two sources of communal revenue recorded were tourism revenues in Westgate (Kshs. 4M) and sand revenues in Makurian (Kshs.858, 000) respectively in 2012. No sources of communal revenue were observed in Kinna. Previous financial records showed tourism revenues of Kshs. 2.6M (2011) and Kshs.1.6M (2010) in Westgate. Makurian has been receiving revenue from sand for the past several years but records were not clearly put together for easy retrieval. Northern Rangelands Trust has a livestock market programme that offers access to a cattle market to communities supporting biodiversity conservation through respective community conservancies. All livestock cess collected at the cattle markets is shared at a ratio of 60:40 between the Samburu County and Westgate community conservancy respectively and thus adds to the Westgate communal revenue kitty.

Westgate was the only site that realized benefits from wildlife, despite Kinna and Makurians' close proximity to wildlife corridors. Kinna is adjacent to the Meru National Park while Makurian is surrounded by private wildlife ranches. Tourism revenue in Westgate is attributed to Westgates' ability to set up an institutional framework that is supporting complementarity between livestock and wildlife allowing the community to benefit from wildlife resource. Wildlife conservation in Kenya is a source of great benefits in form of tourism revenue and is characterized by wildlife land use shifting towards communal rangelands as communities seek to diversify their livelihood (Barrow and Mogaka, 2007). Though this potential to advance livelihood diversification through tourism development exists, the main challenge is the argument that communities get meager benefits with most of the revenue accrued to tour operators, service industry workers and the state (Norton-Griffiths and Said, 2010). These are

reduced further due to poor distribution mechanisms attributed to chronic problems of governance and accountability at community, local Counties and national levels (Homewood, 2009).

3.3.4 Aggregate values

An aggregate value (Figure 3.5) was obtained by summing direct and indirect values. Direct values as discussed comprise household revenues from livestock sales, and other direct sources of income, whilst indirect value is the communal revenue to the community. Highest aggregate value was recorded in West gate and lowest value in Kinna, whilst Makurian was close to Westgate. The observation despite Westgate lowest record on direct value is largely attributed to a source of tourism revenues for Westgate, no communal revenues in Kinna and minimal communal revenue in Makurian.

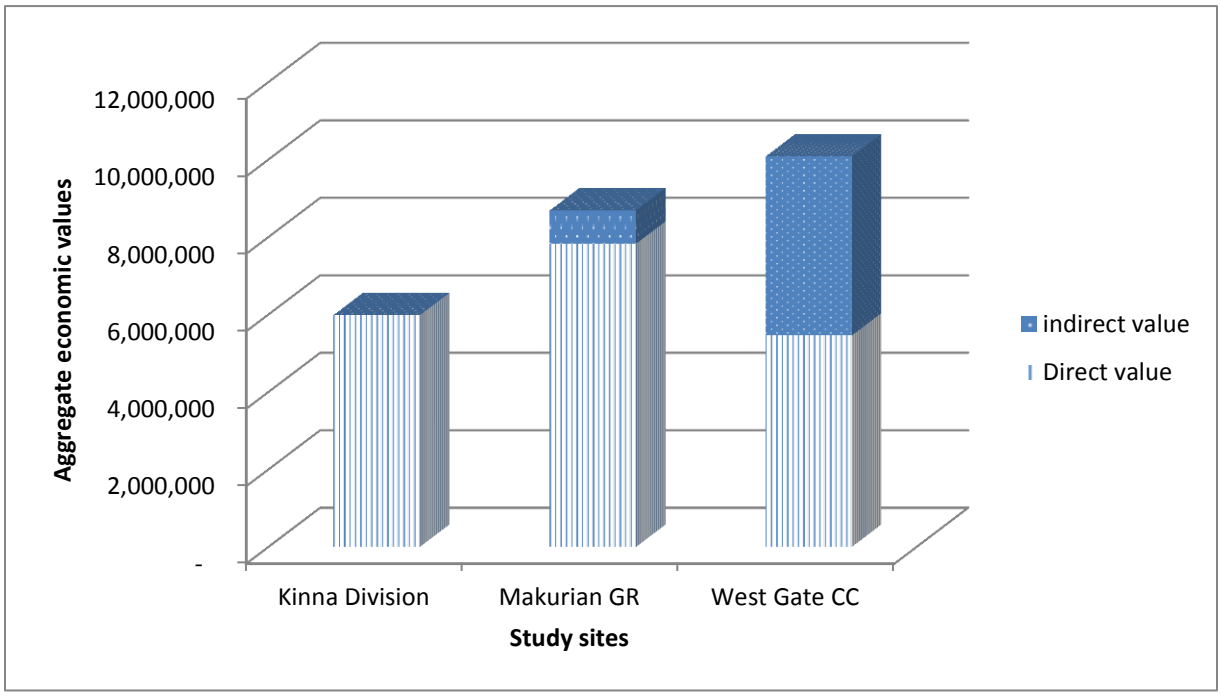

Figure 3:5 Aggregate economic values (direct and indirect)

3.3.5 The relationship between IA and direct value (household revenue)

The influence of an institutional arrangement effect on communal revenue is clearly shown by high communal revenues in Westgate compared to Kinna and Makurian (more details in section 3.4). The effect of institutional arrangements on the direct value (household revenue) was however not clear. To understand the existing relationships between various institutional arrangements and direct value, two linear regressions were carried out. In the first model, the type of institutional arrangement was included as an explanatory variable while in the second model the actual amount collected communally by the institutional arrangement was used instead. The two models gave similar results.

The first model controlled for Kinna and compared it with Westgate and Makurian. Results in the first model (Table 3.5) show the impact of a modern institution characterized by interaction in its management (Westgate) on direct value (household revenue) was negatively significant ($p=0.001$). West gate is managed by conservancy boards which constitute elders, youth, women, county council and NGO representatives. The conservancy boards represent a new model following a rapid growth of community conservancies in the last decade. Households in Kinna and Makurian reflected higher household revenues compared to Westgate recording lowest household revenues. The results suggest there are other factors contributing to better direct values in Kinna and Makurian other than a robust institutional arrangement. Evidence to support this is a diversified livelihood noted in Kinna in the form of crop farming and better employment as a result of high literacy levels. In case of Makurian, the community enjoyed a close proximity to an urban center (Nanyuki) therefore having access to markets and financial services. This was

opposite for Westgate which recorded lowest literacy levels and hence low employment rates and did not also have benefits of close proximity to an urban center.

The findings set stage to argue that a robust institutional framework such as the community conservancy is attractive to marginalized communities that have lower and fewer alternative sources of household revenue. Communities therefore look up to this type of an institutional arrangement to provide a risk management strategy. This is the case for Westgate which is helping the community diversify their alternative livelihoods through tourism development and as a result Westgate community received communal revenue of Ksh.4M in 2012.

Table 3:5: Model 1-OLS results for household level regression analysis for 2012 direct sales

		Linearized		
Direct value	Coefficient	Std. Err.	T	P>t
Institutional arrangement				
Makurian	-24095	48252.39	-0.5	0.618
Westgate	-150558	41182.37	-3.66	**0.000***

Model two (Table 3.6) further evaluated the impact of indirect value (communal revenue) on direct value (household revenue), an indicator of the trickle-down effect of the communal revenue to household revenue. Results were negatively significant (p=0.000) suggesting that communal revenue did not directly translate into household revenue in Westgate. This is true in that communal revenue is not distributed to households but is spent on communal projects such as operating the community conservancy (salaries), school bursaries, road repairs and water development project. The strategy can be argued as a sustainable community development approach especially for economically marginalized areas. This is with the anticipation that investing in provision of necessary infrastructure will in the long term create a stable

environment that is favourable for communities to operate in to improve their household revenues. That said, it is important to remember that rangelands suffer from erratic and unpredictable challenges such as droughts, diseases, conflicts leaving most households vulnerable. Strategies that directly contribute to the household revenues in the short term should run concurrently with strategies contributing to communal revenue to cushion households from unexpected calamities in the short and medium term. This is already underway in Westgate following the establishment of a cattle marketing programme by the Northern Rangelands trust. The programe is offering a cattle market to well performing conservancy and Westgate has received several quotas to this market. The cattle market programme is especially relevant because pastoralism is the key livelihood for communities in the rangelands.

Table 3:6 Model 2-OLS results for household level regression analysis for 2012 direct sales

		Linearized		
Direct value	Coefficient.	Std. Err.	T	P>t
Indirect value	-0.03998	0.009452	-4.23	**0.00000***

3.4 Conclusion and policy implication

The economic value of Northern Rangelands of Kenya is influenced by management of rangelands largely because land tenure contributes to the type of institutional arrangements in existence. This is often complex owing to the fact that communities are required to make decisions pertaining to resource management and economic development collectively. Understanding the economic value of ecosystem services benefits in Northern Rangelands of Kenya is critical for their prioritization in the governments' economic plan. To contribute to this

thinking, this study focused on measuring direct and indirect values (economic values) of ecosystem services benefits in three sites (Kinna, Makurian and West Gate) representing three types of institutional arrangements. The difference in management structures provides a contrast between an elders system, a group ranch committee and community conservancy board management. The fall within a traditional to modern continuum but are all hinged within a traditional mechanism but differing in interactions and facilitation.

Results demonstrate that livestock remains the central source of livelihood in the three sites as would be expected in the Northern Rangelands of Kenya. Communities have other sources of funds i.e. employment, (casual and permanent), tourism donations, government remittances loans and financial services (loans and microcredit). Direct revenues were mostly influenced by literacy levels that allowed better employment (Kinna) and close proximity to urban centers (Makurian) giving good access to markets and financial services. Marginalized communities were attracted to a robust institutional framework (Westgate) which was instrumental in bridging the gap to accessing social and financial services. This is because of the institutional arrangement ability to diversify communal revenue sources by tapping wildlife resource and injecting the revenue to building infrastructure and providing education bursaries. The robust institutional arrangement also played a big role in linking communities to a cattle market and a micro credit scheme.

Findings contribute to three key policies that are under implementation within the Kenyan law and have potential to act as an economic catalyst in Kenya. First is the Kenya constitution 2010 that vests all land in Kenya on the people collectively as a nation, as communities and as individuals (Article 61). It elevates community to a land tenure category with equal legal force

and protection as public and private land. Secondly is the sessional paper No. 3 of 2009 on National Land Policy which allows equal recognition and enforcement of land rights under all tenure systems, promotion and protection of multiple values of land, and the development of fiscal incentives to encourage efficient utilization of land (paragraph 69). The policy proposes resource tenure principles and imperatives aimed at strengthening trust functions of the state, while improving participation and benefits for the people (paragraph 96). Understanding the effectiveness of different institutional arrangements playing a role in communal property regime will support decisions on both policies which are contributing to establishing appropriate land management strategies in the rangelands. Findings also support the Kenya Vision 2030, a policy also supporting land reforms that includes restitution of land due to historical injustices. It proposes securing of wildlife corridors and migratory routes to reverse wildlife losses. It also suggest development of sustainable land use policy for common grazing areas as well as design and use of market based environmental instruments as incentives for improved management of the environment.

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Chapter 4

Assessing external actors roles in facilitating institutional dynamism and socio- economic and ecological development in the Northern Rangelands of Kenya

Abstract

Poverty eradication in Africa remains a challenge despite enormous efforts in employing development strategies to address the situation. Interaction of economic actors and their organization to generate growth and development is a key aspect of economic growth. The actors have an opportunity to establish close interactions with community institutional arrangements especially in the Northern Rangelands of Kenya where most of the land is under common property regime. The lack of clarity on how various actors engage to address socio-economic and ecological challenges is addressed in the study by evaluating external actors' interactions with three key community institutional arrangements (elders, group ranch committees and community conservancy boards). Results show group ranch committees and community conservancy boards management attracted more external actors compared to an elder's only management. Moreover, the government has economically marginalized communities located away from urban centers and Non-Governmental Organizations are mostly bridging this gap.

Key words: Community institutional arrangements, Economic development, Northern Rangelands Kenya, external actors

4.1 Introduction

Eradication of poverty in Africa is closely related to the agro ecological component, social relations of societies, production systems and economies. State and international agencies are addressing poverty as a production constraint with initial trends focusing on technological transfer coupled with environmental sustainability on realizing how fragile ecosystems are (Mortimore 2003). In Kenya, agriculture sector is a key economy driver, constituting 26% of the annual GDP directly and another 25% indirectly, and providing 70% of informal employment in the rural areas (Kenya 2010). The state of the land tenure institutions influence agricultural rural development in the marginalized communities because of the role they play in reducing inequality, improving food security, income and household welfare. Land tenure reforms are complex due to their politically sensitive nature and the area has not drawn huge interest from the international organizations (Ghimire 2002).

The property rights need to be compatible with the community culture and lifestyle. In most pastoralist communities, there are assumptions by many governments that provision of social services is best provided in settler urban environments. Such assumptions may be a threat to the traditional pastoral livelihoods and could lead to undesired outcomes such as high unemployment and cultural loss. Herding communities in rural areas can however receive social services and at the same time enable partnership between local herders and high level conservation authorities (Scoones 2009). For markets to efficiently function they require some organization enforcing contracts and property rights. This organization must have the mandate to force people to adhere to its decisions, implying that the enforcer has to be the government (White 1999). International support can be useful to enable social mobilization by land poor peasants with the help of the

civil society organizations such as rural trade unions, farmers' organizations, cooperatives amongst other professional organizations. These can help build capacity through literacy campaigns, leadership and training programmes (Ghimire 2002).

4.1.1 Social capital in economic development

Economic development and economic growth have been interchangeably used, however the two differ. Economic development focuses on enhancing the quality of human life by using indicators such as income and access to basic needs, while economic growth focuses on resource allocation and its efficiency for the greater national wellbeing (Mehmet al., 2002). The interaction of economic actors and how they organize themselves to generate growth and development is also an aspect of economic growth (Nyangena and Sterner 2008). Rural power structures in a national context need to be viewed as key actors but to achieve this, more cooperation is required between international and national levels as well as interaction between the state and civil society (Ghimire 2002). This is with the realization that project design and evaluation in development is shifting from the traditional approach towards the concept of social capital. Social capital comprises of the social structure and organization commonly characterized by features such as trust, norms, solidarity, and social cohesion embedded in the individuals of a community and which facilitate coordination and cooperation (Putnam 1993). The social capital approach puts the welfare of primary stakeholders in affected communities at the core of design and implementation to blend equity with efficiency (Fukuyama 1995). A study by Krishna (2001) investigated the link between social capital and development performance. Findings suggested that high stocks of social capital were necessary but were not the sufficient condition for community development. His conclusion therefore proposed the need to complement social

capital with information and connections with markets through both the state and non-state actors for effectiveness. Collier (2002) concurs in his proposition that social capital can produce positive external effects such as providing and enabling sharing of knowledge, avoiding opportunistic behavior and the free rider problem of collective action and creating sustainable solutions. Exclusion from social networks and institutions leaves communities without access to networks, financial services (credit and insurance) and information making it difficult to get out of poverty (Fafchamps 2004). The challenge of using social capital is the difficulties in measuring it directly and therefore indicators reflecting specific features of social capital are used. For instance in this study the ability of more external actors to engage with the institutional arrangement will be a positive indicator of social capital as long as the structure reflects existence of trust and cultural norms. The challenge of measuring social capital has resulted to negligence in addressing issues related to social capital in the national discussions and policy formulation (Nyangena and Sterner 2008).

Lack of clarity on how communities in the Northern Rangelands of Kenya are addressing the linkage between the community institutional arrangements and the external actors to create a conducive environment for economic development, is a key question in this study. This is by evaluating how external actors are contributing to addressing socio-economic and ecological challenges in different pastoralist institutional arrangements (elders/trust land, group ranch committees and community conservancy boards). Findings will support the Kenya Vision 2030 which seeks to promote regional development of the ASALs through implementation of initiatives such as the Lamu Port and Lamu – Southern Sudan – Ethiopia Transport (LAPPSET)

corridor. This is by providing evidence on the kind of institutional arrangements that promote partnership with external actors thus consequently influencing economic development.

4.1.2 Socio-economic and ecological challenges

The marginalized state of Northern Rangelands of Kenya coupled by climate change effects has often left communities vulnerable. Climate change has further been seen to undermine human security as a result of reduced access to quality natural resources commonly needed in sustaining livelihoods (Barnett and Adger 2007). Low average rainfall is the key effect of climate change but is often exacerbated by other factors such as disease, conflict, access to weapons. The situation makes pastoralists' future unpredictable as they depend on an uncertain environment to support them (Black well, 2010).

Conflict is largely as a result of resource availability and utilization whilst other causes of conflict include food unavailability, poor health care, low income, and political influences. Conflict resolution mechanisms that bring in diverse stakeholders cutting across the local community to national government are often instrumental such as the elders/ community leaders and the government through the chief. Others involved include the police, religious leaders, community based organizations and family members (Kumssa et al., 2014). Coming up with conflict resolution frameworks, further underlines the importance of local community decision frameworks that operate on a social democracy and that allow communities and their partners bring together different ethnic communities in an effort to curb conflict (Kasara, 2013). To avoid complete dependency on pastures and water which is often the source of conflict, interventions that promote investment in alternative livelihood strategies to generate economic independence are recommended. Food security policies also need to be versatile, not focusing only on food

production, but also factoring in related issues such as the earnings, food prices and gender mainstreaming (Nyariki, et al., 2002). Evidence shows compromised nutrition and health status amongst women who had a semi settled lifestyle compared to women in a settled lifestyle (Adongo et al., 2012).

Education in ASALs has been characterized by lower access, participation, completion and achievement rates (Sifuna, 2005). The limitations of education in these areas have recently attracted various actions by the government of Kenya (MoE, 2006). New policies such as free primary education in 2003 increased enrolment rates whilst other interventions such as recommendation of boarding schools have not shown much success due to the mobile nature of pastoralist. New forms of schooling such as mobile schools, satellites schools, school feeding programmes and open distance learning programmes, have been championed by individuals, NGOs. The government is now moving forward to operationalize these forms of schooling within their development strategy (Ruto et al., 2010).

Kenya Vision 2030 is firm on ensuring that no part of Kenya is called remote, a statement commonly used for the Northern parts of Kenya, where infrastructure is ranked among the top priorities. Poor infrastructure in these areas is often exhibited by low access to markets and basic services, and these deter investment interests that would expand and diversify the economy. In response, the Kenya government plans to focus on four target sectors that include transport, energy, water and sanitation and ICTs (GOK, 2013).

4.2 State and non-state actors in development

4.2.1 Government role in development

A country's agricultural production efficiency is hinged on good governance provided by key institutions for effective development. Poor institutions and policies will impede the adoption of technology, organizational innovation and lead to funds wastage (Olson 1996). Though strengthening the state and citizens respect for institutional framework can enhance agriculture efficiency, greater democracy is often associated with lower agricultural efficiency. This is attributable to interest group capture and political failure arguments in the political economy (Lio and Hu 2009). A robust institutional framework is especially important in the rangelands where land is under common property regime and the areas experience recurrent inter-ethnic conflict over grazing. As the state establishes enforceable property rights, these will only succeed if policies and interventions suppress violence, create new institutional structures that amalgamate warring ethnic groups and build internal capacity to monitor conflict triggering events (Beyene 2009).

A sector wide approach to engage key stakeholders implement the agriculture sector development strategy is operational in Kenya. These include state sector ministries, the private sector and development partners, playing distinct roles and coordinated by the agriculture sector coordination unit. At community level, local pastoralists have demonstrated that well organized communities are able to negotiate with the government, where leaders at the national level maximize the gains of local movements by bringing them into a national network (Igoe, 2003).

4.2.2 State and Non- Governmental Organizations (NGOs) convergence in development

A country's development is closely related to its ability to associate with other development agencies and together pursue a common goal of national development. Collaboration between state and NGOs allows both parties to increase their scope of operation, as well as engage in policy formulation. At the same time the state improves their ability to mobilize funds, reduce opposition and become efficient and cost effective in policy implementation. The state and NGOs can therefore work as partners rather than competitors, and the strategy is further effective if their mutual interest coincides with interest of the communities they are working for (Sen 1999). Bangladesh economy is an example of a successful development case that promotes channeling external funding to actors outside the state i.e. the Grameen bank and the non - development organization, which produce great models worth replication. The state no longer leads from the front and its role is to remove hindrances to development (White 1999). It is clear that state policies have given room for NGOs as alternatives to state agencies in alleviating poverty and promoting development. More research focusing on the relationship between the two, organizational complexities as well as political social and economic realities is needed (Hulme and Edwards 1997).

4.2.3 Non-governmental organizations (NGOs) role in development

Africa has seen tremendous growth in number and influence of NGOs in the last two decades and an increase in African NGOs more recently (Hearn 2007). This coincides with an emphasis on seeking how strengths of NGOs can be utilized to advance sustainable development (Vivian 1994). The global commons are shrinking and thus NGOs are becoming key partners with public and for profit sectors so as to address development challenges (Long and Arnold 1995). Building

local capacity is a growing strategy as donors wish to strengthen civil society and scale up their activities on the ground, to promote self-sufficiency (Howes 1997). On the other hand, donors desire to fund civil society institutions may undermine the formation of civil society. In Tanzania for instance, bureaucracy in international development allowed money to be channeled to NGOs regardless of their capability to bring about democratic change. This situation led to NGO leaders serving as gatekeepers between western donors and the communities they claim to assist, and communities have become commodities of an international NGO industry. The emphasis has also been on managing donor requirements, rather than empowering local people (Igoe, 2003). Non-governmental organizations have therefore no longer been seen as flexible, participatory and democratic organization, and not a sustainable alternative to dysfunctional governments. They can also be unaccountable, non-participatory, unsustainable and poor sinks for donor funds (Mitlin et al., 2007). On the other hand, a major challenge NGOs face is an expectation to come up with simple neat and comprehensive solutions to complex development problems, which is mostly unrealistic and counterproductive (Vivian 1994). Above implementing projects, it is imperative that NGOS are able to play a role in influencing policy out of their existing experience with working development models that are backed by researched evidence base. Studies showed organizations able to influence policy are likely to have homogenous membership, an amalgamated structure, focused programme, informal ties with political leaders and a domestic funding base which is key in future financial sustainability among African NGO's (Bratton 1990).

4.2.4 Private sector emergence in development

There is a growing momentum on the role of the private sector within the donor circle. This has been expressed by a renewed focus on economic growth and private sector at the Organisation for Economic Cooperation and Development Assistance Committee (OECD –DAC), a forum under which aid efforts are coordinated. This shift emanates from shrinking aid to developing countries compared to non-aid flows such as trade, foreign investments and remittances (Nelson 2011). Because there is a link between economic growth and poverty in developing countries, supporting the private sector enables integration of domestic private sector actors into the global economy and consequently benefitting the poor (Estrup 2009). Though donors are in agreement that private sector is instrumental to development, consistency on the approaches the sector take during programming lacks. Most strategies do not engage comprehensively on the distributional or pro poor impacts of growth and the role of the state in the same. This may be a challenge in instances where donors' engagement with the private sector is a means to promote their own commercial interest ((Kindornay and Reilly-king 2013).

4.2.5 Faith based organization growing attention in development

In the past, the role of religion in development has not been largely accommodated in academic literature (Ver Beek 2000), development agencies and by United Nation agencies (Lunn 2009), hence the need to discuss faith based organizations separately from NGOs. This is attributable to the fact that development agencies and NGOs have been primarily driving the research (Jones and Marie 2011). This discussion is however growing and platforms set up to engage representatives of major faith traditions on issues of poverty alleviation and how culture and spirituality can be taken into account during development interventions (Eade et al., 2002). The

state has a role in funding faith based organization however; there are many factors that influence decisions to channel funds through given implementing partners such as domestic political factors and social policies (Paxton and Stephen 2012). An example is research that showed funding to religious NGOs engaged in evangelizing had significantly increased and these were getting prioritized over secular organization in Canada (Audet, et al., 2013). In regard to internal funding, faith based agencies control their private contributions and therefore show flexibility in different approaches applied in the use of the funds. The faith based agencies have therefore been thought to spend funds more efficiently because their main focus has not majorly rotated around project management activities, allowing channeling of funds to problems outside the organization (Harsh et al., 2010).

4.3 Methodology

Details on the study site and study design are expounded in chapter one, general methods section.

4.3.1 Conceptual framework

The study seeks to assess external actors operating in the Northern Rangelands of Kenya and more specifically how government and NGOs are interacting with existing institutional arrangements to promote development. This is by evaluating the role played by the government and NGOs in addressing socio-economic and ecological challenges in different institutional arrangements (elders, group ranch committee and community conservancy boards). The social challenges comprised; insecurity, negative politics, cattle rustling, low education levels, land

tenure challenges and negative culture practices. Economic challenges comprised; low infrastructure, low financial services, low entrepreneurial skills, lack of livestock markets, middlemen and untapped ecotourism. Ecological challenges comprised; droughts, disease, floods, pasture degradation and water degradation (Figure 4.1). The framework is based on social capital theory and its role in economic development. Different pastoralists' institutional arrangements ability to interact with external actors is therefore conceived as a form of social capital existing in the Northern Rangelands of Kenya that has a significant potential to contribute to economic development.

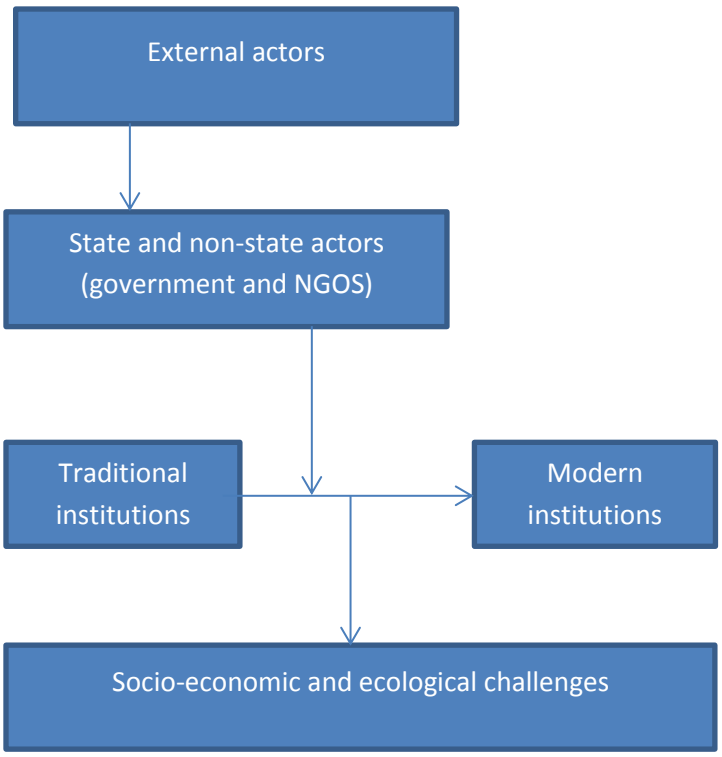

Table 4:1 Conceptual framework – External actors influence on pastoralists' institutional arrangements in addressing socio-economic and ecological challenges

Source; Authors own conceptualization (2015)

4.3.2 Data type and source

Information on existing community decision making structures in the Northern Rangelands of Kenya was obtained through literature review and validated in a household survey conducted using structured questionnaires. Results on institutional arrangements domains is explained in Chapter 2 – Existing pastoralists institutional arrangements and their dynamism in the Northern Rangelands of Kenya. Prior to the household survey all external actors present were outlined in the Focused Group Discussions (FGDs) and key informants' sessions. Using the household survey, respondents were asked to rank all the external actors present in the community. The rank parameters were coded as 1=not active, 2=active and 3=most active and parameter used in results presentation is most active. Households were also asked who was helping address the socio-economic and ecological challenges. Further households were also asked if they understood how the new devolved county government works and what the government should prioritize when addressing social economic and ecological challenges.

4.4 Results and discussion

4.4.1 Community perceptions on most active external actors in different pastoralists institutional arrangements

Using key informants and focused group discussions, key external actors found to be operating across the three study sites were government, NGOs, private ranches, religious organization, private sector and research institutions. Details of the most active actors as ranked by respondents within each institutional arrangement are visualized in Figure 4.2.

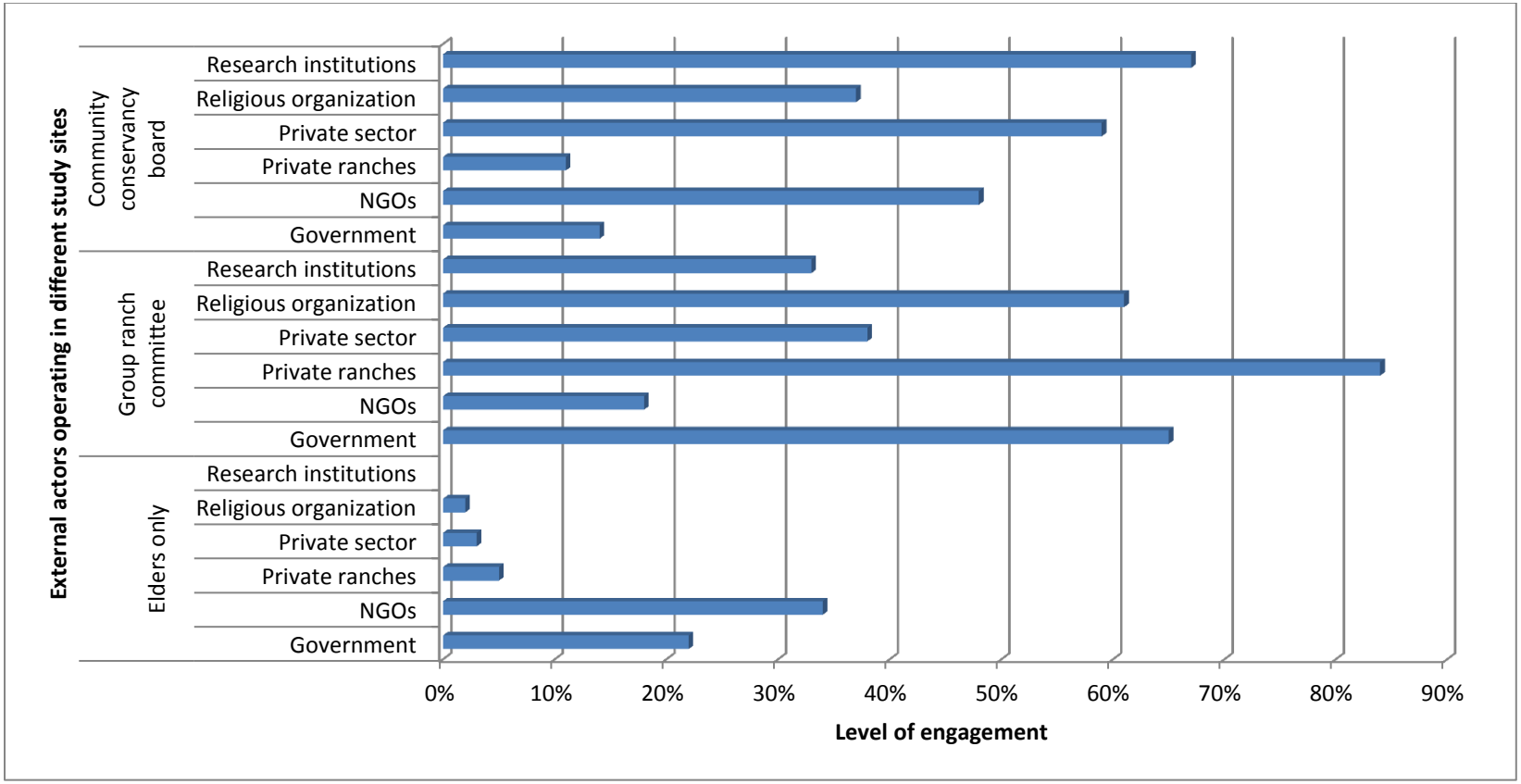

Figure 4:1 External actors in different institutional arrangements in Northern Kenya

Makurian Group Ranch demonstrated the highest government presence at 65%. This may be attributed to Makurians close proximity to an urban center (Nanyuki town) whilst NGOs presence was low at 18%. The private ranches efforts in Makurian GR were acknowledged by the community with 84% of the respondents considering them as most active. This is largely attributed to Makurian GR very close proximity to many private ranches owned by white settlers. Substantial private sector (38%) and research institutions (33%) presence in Makurian was noted while religious organization presence was highest in Makurian (61%).

Low government (14%) and private ranches (11%) presence was noted in West Gate and a much higher NGO presence (48%). Private sector (59%) and research institutions (67%) presence was higher in West gate compared to Kinna and Makurian. A substantial religious organization presence was also noted in West Gate compared to Kinna. Kinna recorded government and NGO presence with a higher NGO presence noted. Private sector, research institutions and religious organizations presence were low.

Findings indicate more external actors are operating within the group ranch committees (Makurian GR) and community conservancy boards' management (West Gate). Group ranch committee and community conservancy boards provide a semi-formal kind of structure compared to elders only management in Kinna. These semi-formal structures allow employment of educated staff and often youth who are tasked with day to day management of the group ranch or community conservancy. This can be argued as a contributor to accountability and transparency structures within the institutional arrangements and is thus attractive to donors and investors desiring to collaborate with the communities.

Non-Governmental Organization presence was lowest in Makurian compared to Kinna and Westgate. Bearing in mind that Makurian has very close proximity to an urban center (Nanyuki), the finding may suggest that NGOs prefer to work in communities that are a bit marginalized. This is assuming that as one gets away from an urban center, the more likely an absence of government support services. Makurian Group Ranch is surrounded by private ranches explaining the high figures reported on private ranches. Private ranches provide social benefits such as employment, controlled grazing during drought, and medical camps amongst others to neighboring communities thus making a direct contribution to economic development. Religious organizations efforts were recognized more in Makurian and West Gate and less in Kinna. This finding may suggest that type of religion may have influence on development. A case example is the Islam religion that does not allow communities to take loans that accrue interest. The concept could be argued to diminish households' sources of capital especially for households that strongly hold to their faith. In reaction to this, Islamic banking is growing to address the gap.

4.4.2 Government and NGOs contribution to addressing socio-economic and ecological challenges

Since government and NGOs are the common cross cutting external players in the sample areas, respondents were asked who between them is helping them address the social economic and ecological challenges. Presence of government and NGOs was fairly similar across the sample as seen in Figure 4.2. Findings indicate that both actors i.e. government and NGOs demonstrated a slightly higher focus on economic challenges compared to social and ecological challenges. Economic challenges have a direct effect on strategies to economic development. It is therefore an attractive area of intervention by both government and NGOs whose mandate is commonly to economically empower communities they work in.

It is worth noting that social and ecological challenges also have an indirect but crucial role to play in economic development and therefore deserve attention. A good example is low education levels, clustered under social challenges and its effect on household income. Findings in Table 4.2 show household characteristics that demonstrate better educated communities such as Kinna attracted more permanent and casual employment. This is significant because employment is a form of livelihood diversification that contributes to better household incomes.

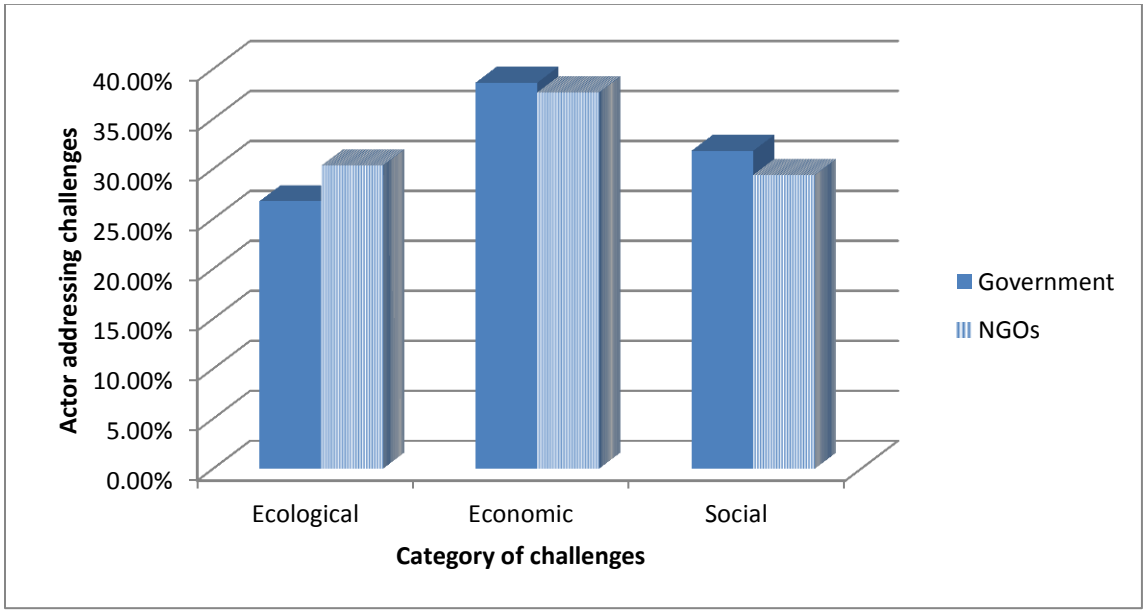

Figure 4:2 Government vs NGOs role in addressing social economic and ecological challenges

	Education Level (%)				HHH occupation (%)				
Site	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**5**
Kinna Division	41	37	16	6	59	2	14	4	20
Makurian GR	69	18	8	4	76	6	4	2	10
West Gate CC	85	13	2	0	96	0	2	0	2

Education levels; 1=No school, 2=Primary, 3=Secondary, 4=Tertiary

HHH occupation; 1=Livestock rearing, 2=Herding, 3=Permanent employment, 4=Casual employment, 5=Other small businesses

Table 4:2 Household head education and occupation

4.4.3 Community's perceptions on what Government should prioritize

Findings in Figure 4.3 (very important bar) show that respondents prefer that government gives priority to address the social economic and ecological challenges equally. This finding confirms the need for a systems approach when promoting development in the rangelands due to the complex nature of the system. The rationale is a system comprises various components (in this case the social, economic and ecological challenges) that are usually interlinked and contribute to the final output by the system. This is significant especially for the Northern Rangelands of Kenya characterized by complex decision making structures owing to a common property regime.

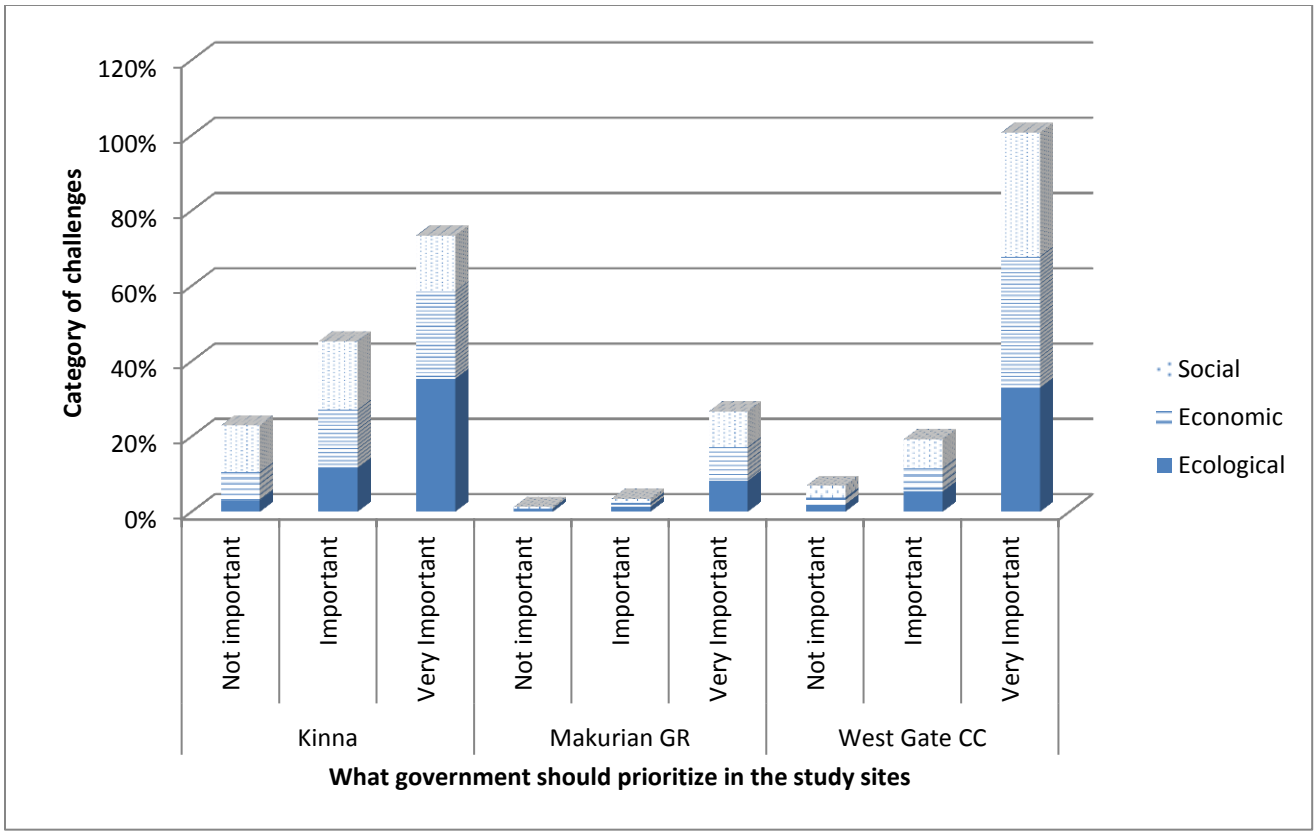

Figure 4:3 Perceptions on what government priorities should be when supporting address challenges

4.4.4 Communities understanding of the new devolved government

Respondents in Kinna (48%) and West Gate CC (40%) had a better understanding of the new county government than in Makurian GR (10%) as shown in Figure 4.4. Based on findings in Figure 4.2 showing low government presence in both Kinna and West Gate, the two could be considered as marginalized areas. Their better understanding of the new devolved government may therefore be attributed to optimism on the devolved government ability to address their socio-economic and ecological challenges. Seventy two percent of respondents in Makurian on the other hand did not understand how the new devolved government works. This could be

attributed to the fact that they are already enjoying a government presence with the close proximity to an urban town (Nanyuki), and were not keen to find out more. The results could however be attributed to Makurian community illiteracy levels which recorded substantially high at 69% (Table 4.1). Another possible reason could be an antagonism toward the government and its operations based on perceptions that government takes away from the community rather than give to the community. The former and latter reasons above could be considered mainly because Makurian is characterized by a minority ethnic group (Laikipia Ndorobo Maasais) amidst a high population of Meru and Kikuyus tribes. The two tribes form key government leadership and engagement in government operations. Lack of government recognition by the Makurian community is also reflected in Figure 4.4 where respondents were asked to rank what challenges (social, economic and ecological) the government should prioritize, and very few responses were given.

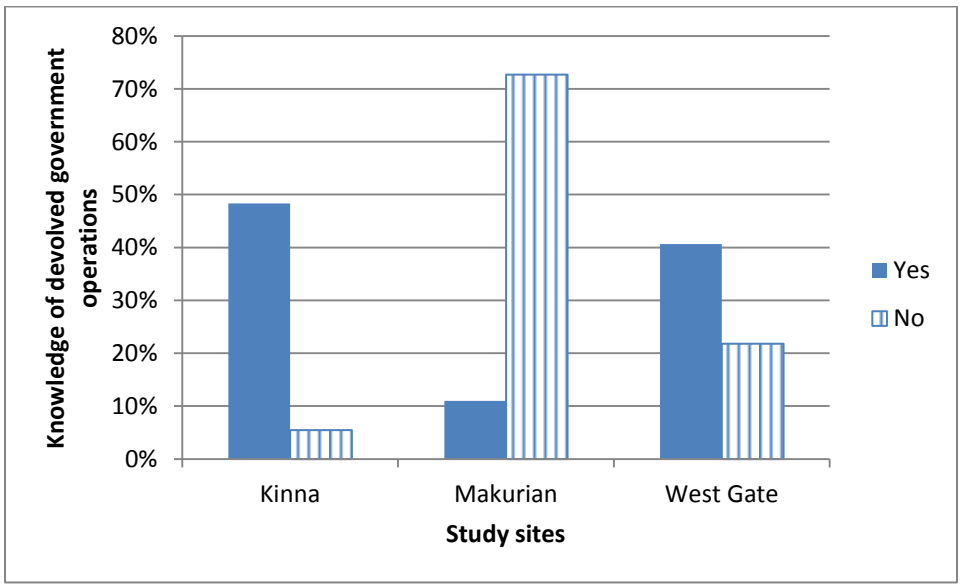

Figure 4:4 Communities understanding of the new devolved county governments operations

4.5 Conclusion

The study compared three different institutional arrangements i.e. elders only, group ranch committee and community conservancy board management, through which communities are making decisions communally. These institutions are also hinged on land tenure systems in Northern Kenya Rangelands (trust land and group ranches). This was to help understand how pastoralists' institutional arrangements are relating with external actors in addressing social, economic and ecological challenges to promote development. The elders only, group ranch committee and community conservancies' board scenarios were provided by Kinna Division in Isiolo, Makurian Group Ranch in Laikipia County and West Gate Community Conservancy in Samburu County, respectively. The question was of importance because in Kenya, agriculture sector is a key economy driver and is hinged on different land tenure systems. Reforms in land management institutions would therefore play a big role in reducing inequality, improving food security, income and household welfare when promoting agricultural or rural development in the marginalized communities.

The study demonstrated that institutional arrangements that have a semi-formal structure constituting an interaction of various actors' such as elders, educated youth and women (group ranch committees and community conservancy boards) attracted more external partnership (NGO's, research institutions, religious institution, private sector and private ranches). This finding is significant because an institutions ability to associate with other development agencies to pursue a common goal is a key component of development. Such an institution creates a conducive environment for the state and non –state actors to work as partners and their

effectiveness is further enhanced if their mutual interest coincides with interest of the communities they are working for.

The NGOs continue to bridge the gap created by government in the marginalized areas such as Kinna and West Gate. The new devolved government however has a mandate to support the marginalized communities and help equalize benefits received with other Counties in Kenya. It is also imperative that the devolved county government gives ear to the existing community institutional arrangements and work in partnership to bring about relevant and sustainable change. On a general note, there was more focus on addressing economic challenges compared to social and ecological challenges by the government and NGOs. This directly affects economic development; however there is also need to address social and ecological challenges which indirectly affect economic development. By addressing social economic and ecological challenges together means that a systems approach is applied and this is useful to achieve holistic development interventions.

The Kenya constitution 2010 has recognized the need to address land tenure issues and has suggested the redefining of community land. The findings of this study will contribute towards evidence needed in drawing a strategy on community land. This is by providing evidence on the type of institutional arrangements that promote a cohesive relationship with external actors. The Kenya Vision 2030 is instrumental in enabling economic development in the northern Rangelands of Kenya. Isiolo is one of the Counties that fall under the Lamu Port South Sudan Ethiopia Transport (LAPPSET) corridor project that is hoped to contribute highly in economic development and hopefully its benefits will spill over throughout Northern Kenya. As the County and National government implement this project, participation of the existing community

institutional arrangements will contribute to drawing relevant strategies and allow smooth implementation of the interventions.

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Chapter 5

Assessment of adaptation of different institutional arrangements to socio-economic and ecological challenges in Northern Rangelands of Kenya[4]

Abstract

Governance of Northern Rangelands of Kenya is changing to cope with new challenges in the social ecological system. The change is largely seen in the form of eroding customary institutions and new hybrid institutional arrangements. Though the change is welcome, it is imperative that these ecosystems cope with disturbance without disintegrating into a different state that is controlled by a different set of processes to ensure sustainable Rangeland Management. This ability is referred to as resilience and is characterized by maintained ecosystem diversity and a diverse set of stakeholders engaged in supporting the system. It is not clear how the change is enabling communities adapt to successfully address existing challenges. The study assesses how institutional arrangements are rearranging themselves to be able to tackle the growing socio-economic and ecological challenges. Three study sites namely Kinna Division, Makurian Group Ranch and West Gate Community Conservancy; representing three types of institutional arrangements (elders only, group ranch committee and community conservancy board) were investigated. Key informants, Focused Group Discussions and household survey methods were used to gather data. Data was analyzed using Ms office (Ms Access and Ms Excel) and social network analysis softwares. Findings indicate that communities are taking a co-management approach to address socio-economic and ecological challenges. This is evidenced by an interaction of community institutional arrangements with each other and with

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external actors. Findings are useful as the Kenyan government implements the national land policy which recognizes the need to restructure community land and its management.

Key words; Resilience, Co-management, Social Ecological Systems, Marginalization, Rangelands

5.1 Introduction

For a long time, Northern Kenya Rangelands have remained marginalized as a result of misguided policy stemming from a lack of understanding of the Rangelands value and potential. A change in Kenya government in 2003 came with a higher recognition of the importance of ASALs development. ASALS are areas within rainfall zones of 0-300mm and 300-600mm respectively. They have short growing periods and rainfall patterns are erratic making them not suitable for cultivation. Key existing policy is the Kenya ASAL policy which contributes to other key policy tools such as the Kenya Vision 2030, Constitution of Kenya 2010 and the National Land Policy. A well thought development strategy for Northern Rangelands of Kenya by the diverse stakeholders is crucial to eradicate marginalization and constructively address the challenges. These systems are characterized by common problems related to chronic poverty such as, increasing population pressure, high unemployment and degradation of natural resources. The strategy therefore needs to take a broad view with various tenets that can be applied to enable fastened changes because the drylands are complex and require a multifaceted approach in tackling challenges (Odhiambo, 2013).

Local community participation in decision making is often emphasized as key to development and this study explores how pastoralists' institutional arrangements may play a role. The

rationale is that development projects defined locally target the real needs of the beneficiaries and potentially angle communities better to control both the process and the outcomes of the project (Mcpeak et al, 2009). Local communities possess local ecological knowledge, which is important in development of these social ecological systems. The threat is that most of the times this knowledge is based on incentives to extract rather than to conserve. This happens when investments only promote enhancing socio-economic standard, without factoring in the enhancement of existing local ecological knowledge. Science based dialogue can address the concern by establishing institutions that can set up a stage to share this knowledge (Crona, 2006). These institutions need a collective action mechanism that can be analyzed using social network analysis. This is a valuable tool that can be used in identifying social groups, influential actors, and a strategy for communication as applied in this study. To achieve successful co-management, there is also need for incentives and attributes that will encourage influential actors to emerge in leadership to coordinate collective action efforts (Crona and Bodin, 2006).

5.1.1 The significance of resilience and co-management concepts

Governance of ecosystems needs to be flexible and have the capacity to respond to environmental feedback because of their complex adaptive nature (Levin 1998). Dynamism enables development of new knowledge and understanding to cope with the imminent change (Carpenter and Gunderson (2001). This aspect of continuous learning is critical in social systems because the capacity of humans to predict and plan for the future is instrumental in resilience. Key features of resilience include the ability of the system to retain control despite of change, capability of self- organization and its ability to increase learning and adaptation capacity. Two key components in enhancing resilience are ecosystem diversity and sharing of resource

management by a diverse group of stakeholders (Holling and Walker, 2003). It is therefore important to understand where resilience resides in a system, when and how it can be lost or gained so as to prevent a social ecological system from moving in an undesirable state as well as discover points of intervention (Holling, 1973).

Complex systems theory looks at nature as an evolutionary process, characterized by adaptive cycles that result to uncertainty, non-linearity and self-organization (Berkes, 2004). The component of resilience that reflects the learning aspect of system behavior in response to disturbance is known as adaptive capacity (Walker et al., 2002). Further the process through which institutional arrangements and ecological awareness are proved and altered in a dynamic and self - organized way is called adaptive co-management (Folke et al., 2002). Natural resource management and the efforts to link ecology, economy and society is the source of new thinking around co-management. Rationale of co-management is that processes of allocating and using resources are shared among multiple parties, especially in common property regimes (Pinkerton, 1989). Co-management concept emanates from the synergy between collaboration and adaptive management which yields a community based system encompassing complex cross scale linkages and dynamic learning. The self-organization is facilitated by rules and incentives of higher levels, giving social ecological systems the potential to be more robust to change (Olsson et al., 2004).

Further, it is imperative that social and political contexts under co-management and adaptive co-management are examined. This is because when political economy is not considered the results tend to reinforce existing inequalities (Nadasdy, 2003). Management approaches based on resilience also need to view events in a broader spectrum i.e. regional rather than a local context,

and the need to emphasize heterogeneity. These require a qualitative capacity to design systems that can absorb and accommodate future events in whatever unexpected form they may take (Olsson et al, 2003). Unlike conventional rangeland management that focuses on optimization of secondary production, a resilience based approach considers the diversity of resources available from rangelands which are the foundation of livelihood security of both developed and underdeveloped rural communities. Research and management fora are giving this diversity of resources and consequent livelihood options more recognition due to its ability to offer greater opportunities for new and innovative uses of rangelands both for subsistence and commercial needs (Shackleton and Campbell, 2003).

Despite the growing interest in co-management approach, very little empirical evidence exist on how to conceptualize, analyze and evaluate co-management (Carlsson and Berkes 2005). This gets more complex when the focus is on rangelands where existing data on co-management is insufficient. The Northern Rangelands are moving away from purely using the customary institutions to address the socio-economic challenges and thus embracing a co-management type of arrangements that engages a diverse set of stakeholders. No clear evidence exists on how this is unfolding and therefore this study attempts to explore the issue. The objective is to assess how pastoralist institutional arrangements in the Northern Rangelands of Kenya are adapting so as to address the socio-economic and ecological challenges.

5.2 Methodology

Details on the methodology (study site and design) are within chapter one, general methods section. Using a household survey instrument, respondents were asked who was helping them

address various socio-economic and ecological challenges at both community and external levels.

5.2.1 Conceptual framework

The study seeks to assess how traditional institutions are rearranging themselves into hybrid modern institution characterized by interaction of various groups and actors within and outside the community. This is necessitated by socio-economic and ecological changes that require different institutional capacities to handle. The traditional institutional arrangement evaluated is an elder's only system that operates within a trust land system. Group ranch committees and community conservancy boards are the management organs in group ranches and community conservancies land tenure/land use systems. A group ranch has been in operation since 1968 following government direction whilst a community conservancy is the new emergence within the last decade.

Dhedha elders are the elders setup investigated in this study. Found amongst the borana community in Northern Kenya, Dhedha elders form key community decision makers and are charged with resource management (land, pasture, water) at the community level. This body is formed by individual elders from different closely knit households called the "Olla". The management strategies are guided by an unwritten laid down rules, regulations, norms, values and beliefs. The group ranch committee constitutes majorly elders from the different clans within the group ranch but also has representation from women and youth. The committee is put in place through elections that takes place every two years and operate within the mandate of a GR constitution. The group ranch holds an annual general meeting (AGM) to deliberate and make

decisions on management of the group ranch. Group ranches raise funds through income generating activities such as ecotourism activities, sand harvesting and sale.

The conservancy board is a democratically elected board which draws its membership from different parts of the community. It has a good representation from elders, youth, women, county councils and obtains some level of facilitation from NGOs. The conservancy board employs staff under the day to day management of a conservancy manager. Source of funds are from income generating activities (tourism and livestock marketing revenues) and donor funds. Board members are elected at the AGM and have three year tenure of office. The AGM is held annually and is useful to communicate progress and ensure accountability of conservancy board to its members. The study contrast how these institutional arrangements interact with each other and other external actors to address socio-economic and ecological changes as conceptualized in Figure 5.1. The social challenges comprised; insecurity, negative politics, cattle rustling, low education levels, land tenure challenges and negative culture practices. Economic challenges comprised; low infrastructure, low financial services, low entrepreneurial skills, lack of livestock markets, middlemen and untapped ecotourism. Ecological challenges comprised; droughts, disease, floods, pasture degradation and water degradation. The study is based on social ecological resilience theory focusing on social groups or communities that depend on ecological and environmental resources for their livelihood.

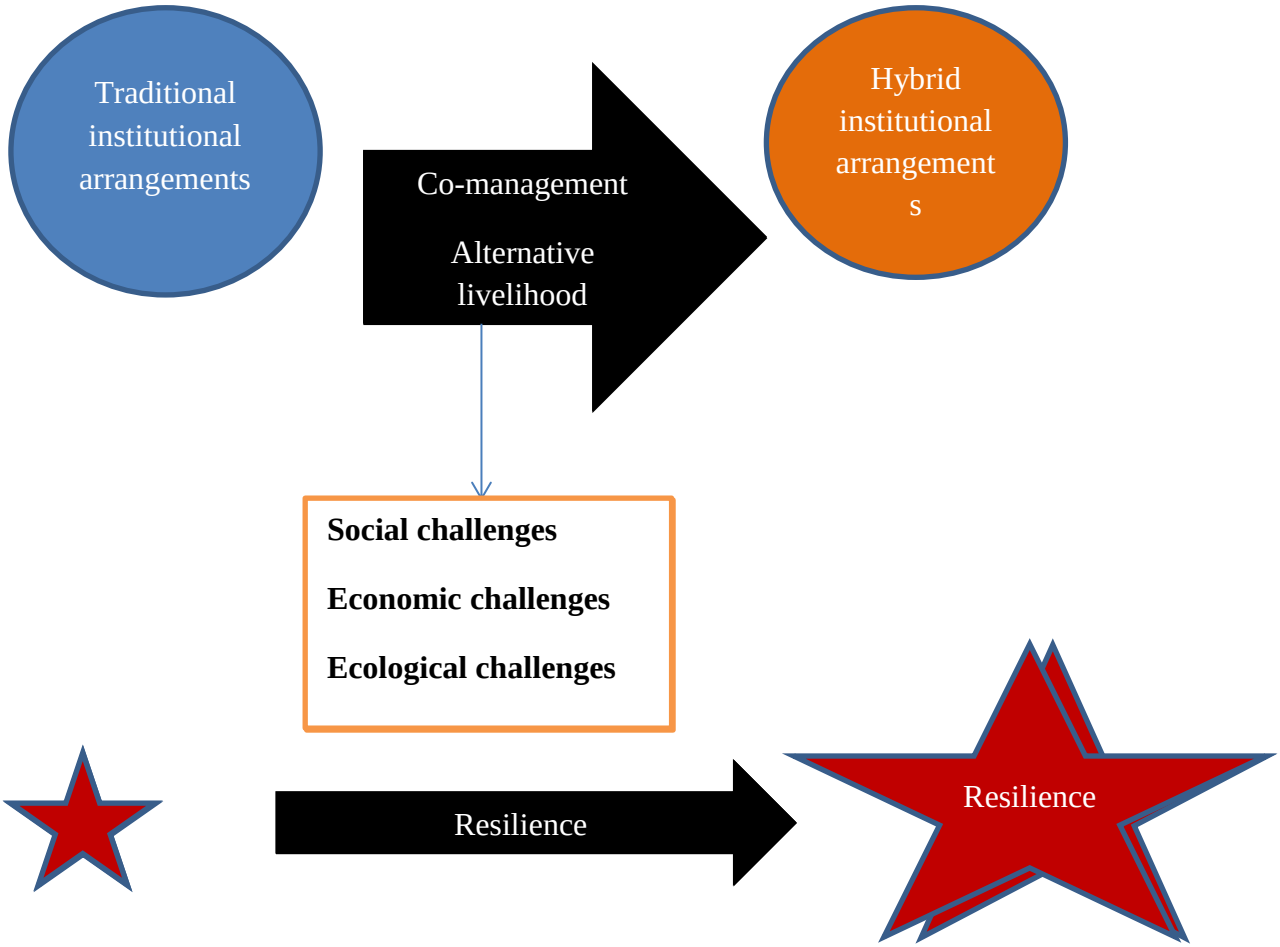

Figure 5:1 Conceptual framework – Adaptation of pastoralist institutional arrangements to address socio-economic and ecological challenges

Source; Authors own conceptualization (2015)

5.3 Results and discussions

5.3.1 Adaptation of pastoralist institutional arrangements interactions to tackle social economic and ecological challenges.

Results (Figure 5.2 and 5.3) obtained through social network analysis demonstrate type of actors, their interactions and influence in managing socio-economic and ecological challenges. The size of the node in the graphs is based on the degree centrality which is simply the number of links an institutional arrangement had to various challenges. The colours/symbols show the type of

challenge, social, ecological or economic. Results show that a decade ago, the key actors were elders, group ranch committee and the government. This is different in 2012 where key actors are elders, group ranch committees, community conservancy, government and non-governmental organizations. The finding indicate that the role of an elders management only is challenged largely due to a lack of capacity to address new challenges posed by changes in the socioecological systems such as the Northern Rangelands of Kenya. The response to this is an interaction between the actors within community leadership (elders, group ranch committee and community conservancy board) and external actors (government and non-governmental organizations). Further, Westgate represents a community conservancy institution model which has rapidly emerged in the last decade. It is managed by a conservancy board which constitutes council of elders, youth, women, government and non-governmental representative demonstrating a co management approach in institution building. Some socio-economic and ecological challenges were only managed by certain institutional arrangements. An example is the negative culture practices linked only to elders' management in 2002. In 2012, the same challenge is linked to all the actors, further showing the increased level of collaboration. Details on managing specific challenges are expounded more in the next section.

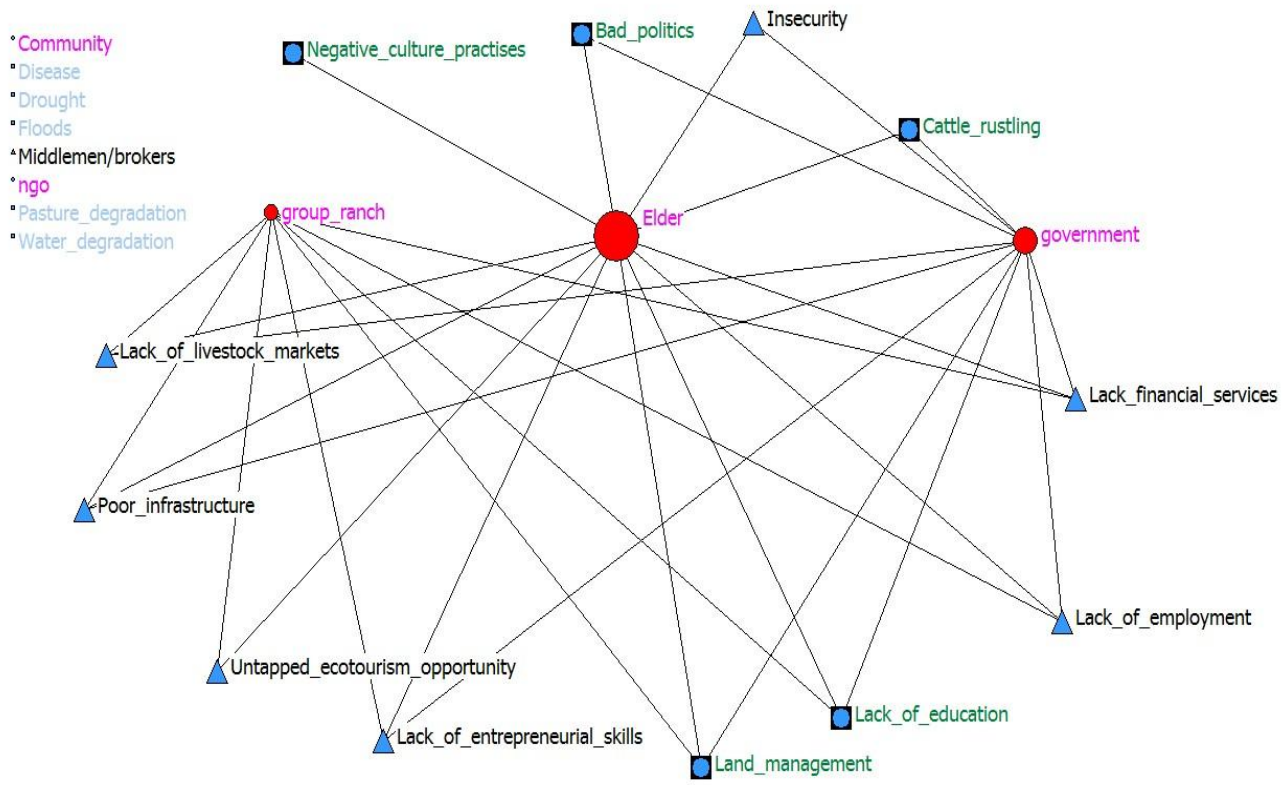

Figure 5:2 Interactions of pastoralist institutional arrangements (2002)

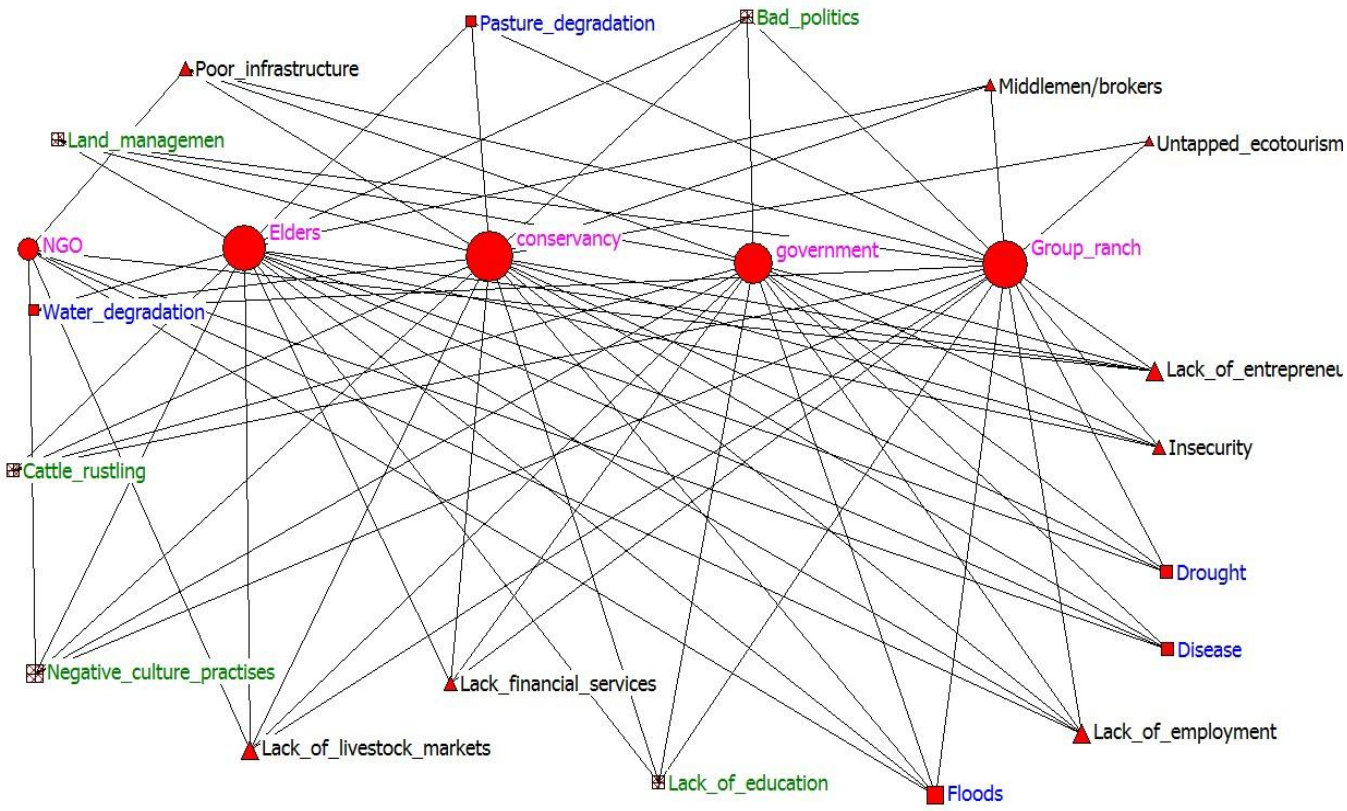

Figure 5:3 Interactions of pastoralist institutional arrangements 2002

5.3.2 Types of social challenges and their management

Results in Figure 5.3 show specific social challenges in the Northern Rangelands of Kenya and actors helping address them. A decade ago, the elders had more influence in addressing most of the social challenges especially, insecurity (94%) bad politics (79%), cattle rustling (96%) and negative culture practices (77%). Social challenges mostly revolved around the use of common resources such as pasture and water. The common resources are scarce and are further diminishing as rangelands shrink due to land use changes. The rising populations also means larger numbers of livestock as each household seeks to maintain its own herd. The finding showing engagement by elders confirms the role of customary institutions in helping pastoralists

communities make collective decisions on resource management based on informal rules and regulations. The GR made a substantial contribution towards low education (42%) and land tenure issues (28%). A portion of funds from the communal revenue kitty was given to households inform of school bursary schemes. The GR has authority over land following legislation in 1968 when the government attempted to formalize traditional community decision making structures to enable communities manage their land productively. A few group ranches have managed to secure title deeds and others still pursuing this process. The process is challenged by hefty amounts of funds required owing to the large tracts of land forming group ranches.

In 2012, various actors elders, GR, CC and the government all supported address social challenges. This suggests that the elders' capacity to retain full authority may have declined or the elders have been flexible in their management to accommodate other players in managing the rangelands. The GR had impact on some of the social challenges i.e. negative politics (20%), land tenure (31%) and negative culture practices (22%). Results show the GR still demonstrates authority over land tenure though other players are now perceived to be playing an active role on the issue. This is especially noted with the emergence of a CC, a new institutional arrangement within the last decade. Community conservancy is noted to be proactively engaging the community in diverse social challenges i.e. insecurity (23%), cattle rustling (24), low education (22%), land tenure (27%) and negative culture practices (21%). Compared to 2002 results (Figure 5.3), the CC demonstrates a bigger role in supporting education, a result that is attributable to part of communal revenue going towards a bursary scheme for the community members' children.

Employment of conservancy rangers to patrol areas within the community to curb poaching amongst other security strategies by the CC may explain their notable influence on security and cattle rustling. The CC works within a community structure either a trust land system (elders) or a group ranch system but at the same time enjoys partnership from external actors, hence its ability to influence the social issues within the community. Northern Rangelands Trust is an umbrella body of community conservancies in the Northern Rangelands of Kenya. The Trust support training of scouts/rangers in government institution called Manyani and these are redeployed to their respective conservancies after the training. The government influence is also notable especially in the area of insecurity. The three institutional arrangements are located in volatile areas where communities are competing for scarce resources, majorly pastures and water to sustain their pastoralism livelihoods. The CC institutional arrangement governance structures constitute the existing community decision making structure (elders, group ranch) and dynamic educated youth. Its emergence within the decade shows a growing co-management approach in managing the rangelands and this is validated by 2012 results on interaction.

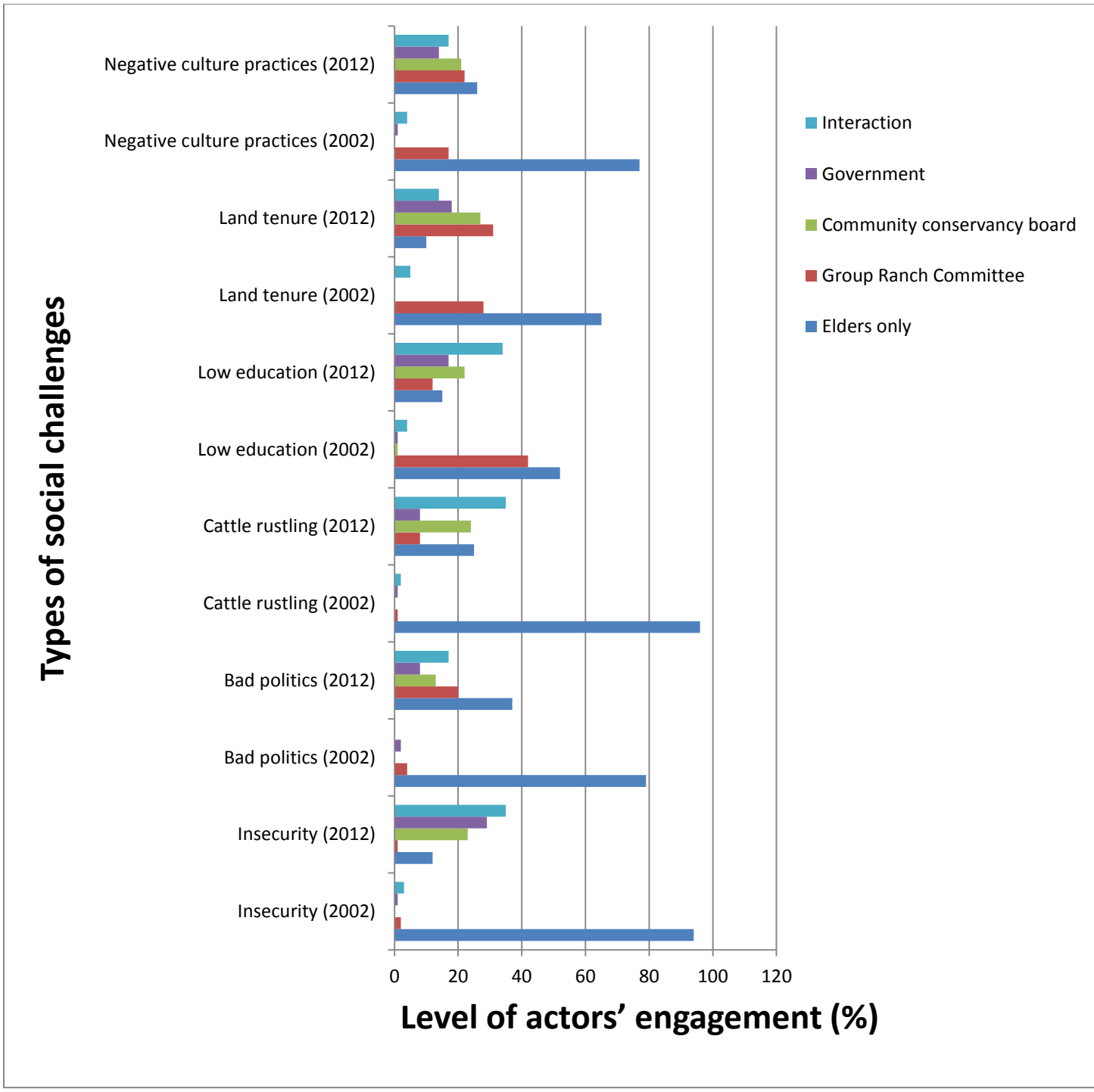

Figure 5:4 Social challenges and actors engaged in addressing the challenges

5.3.3 Types of economic challenges and their management

Both the elders and the GR engaged the community in addressing economic issues in 2002 (Figure 5.5). The elders were more involved in challenges around livestock marketing (79%) and middlemen (57%), indicating elders' instrumental role in giving market information to the community. This finding emphasizes the significance of livestock as a livelihood asset hence the keen attention by the elders. The GR showed substantial support in the areas of low infrastructure (46%), and untapped ecotourism (37%). Both infrastructure and ecotourism require large investments to set up and thus need external support to implement. The results therefore imply that the GR has more ability to attract external partnership compared to elders.

A more interactive role by various institutional arrangements (elders, GR and CC) was noted in 2012 as shown in Figure 5.6. This demonstrates growing co-management in addressing the economic challenges. The interaction is further shown in the CC management leadership which constitutes elders, group ranch committee and educated youth. Its emergence in the Northern Rangelands of Kenya in the last decade has been rapid suggesting that communities feel a positive effect from the CC operations.

The growing co-management in tackling economic challenges may be attributed to the fact that addressing economic challenges often require a level of collaboration internally and with external partnership. The economic challenges that showed highest institutional interaction in addressing were low infrastructure (48%) and livestock markets (41%).

The CC demonstrated diverse support with its attention noted in the areas of low financial services (26%), low entrepreneurial skills (29%), middlemen (23%) and untapped ecotourism (36%). More attention was noted on untapped ecotourism challenge compared to other challenges the CC helped address. This may be attributable to the fact that CC is a big advocate for the biodiversity conservation and more specifically wildlife conservation.

In Samburu County, there is a rapid growth in investor interest to partner with communities in setting up tourism ventures. This has been facilitated by partnership with the Northern Rangelands Trust, an organization supporting community conservancies build capacity in the areas of institution building, resource management, fundraising and economic development. This is also the case for a number of GR in Laikipia County though not the case for Makurian GR which only owns a campsite, put up under the help of Kenya forest service. This is not operational because the GR does not have capacity to maintain the campsite and attract guest.

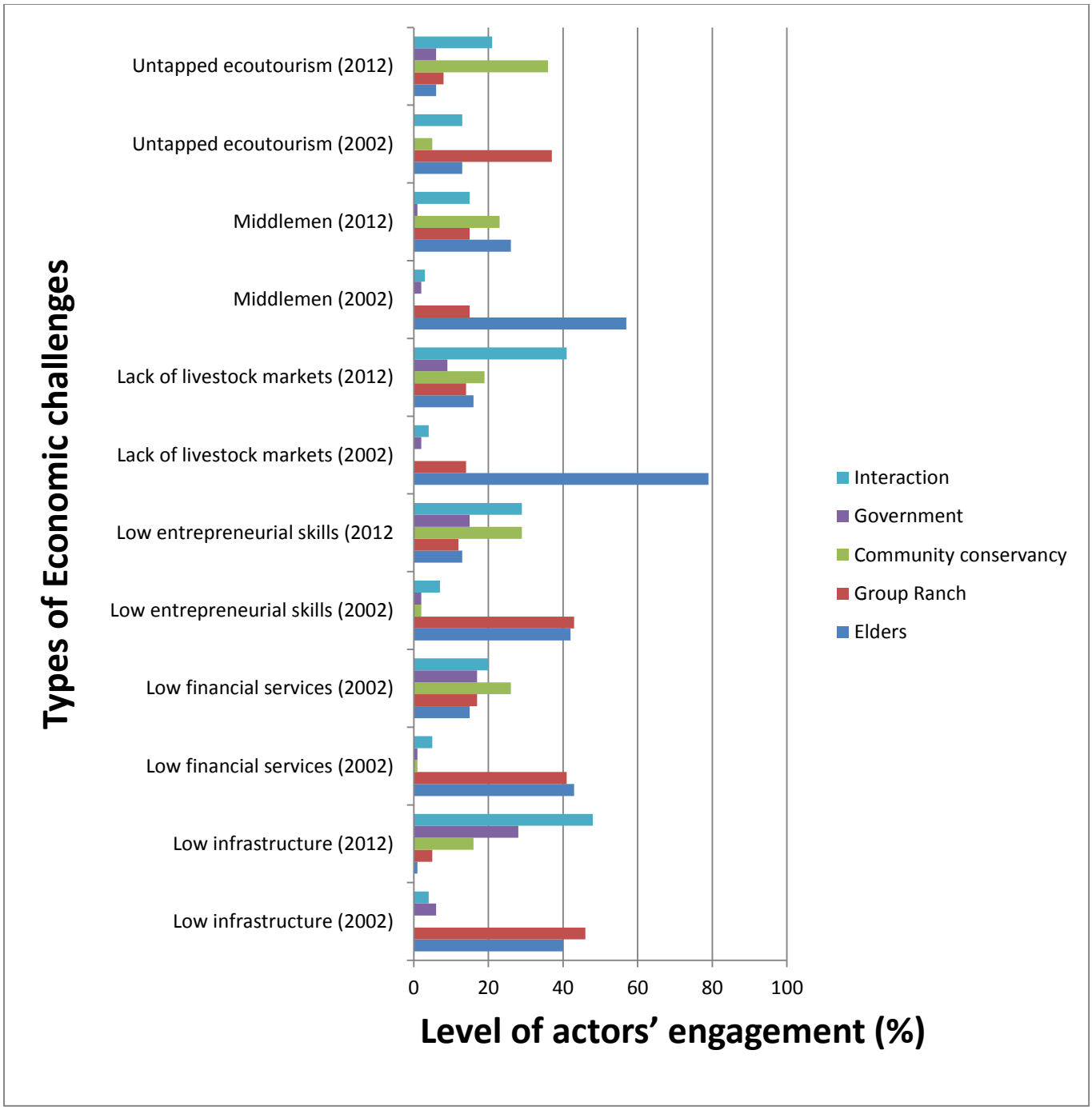

Figure 5:5 Economic challenges and actors engaged in addressing the challenges

5.3.4. Types of ecological challenges and their management

Elders played a bigger role in addressing ecological challenges in 2002 i.e. drought (89%), disease (80%), floods (81%), pasture degradation (84%) and water degradation (85%) as seen in Figure 5.7. Ecological challenges have a direct impact on the pastoralism livelihood, and would thus explain the high level of attention by the elders. This is because Northern Rangelands of Kenya are characterized by a pastoralism livelihood and the practice is at the heart of the community and their leaders. Evidence of interaction amongst various institutional arrangements in addressing the ecological challenges is noted in Figure 5.8. Drought (39%) and disease (30%) attracted higher levels of co- management probably due to their negative impact on pastoral livelihoods often leading to loss of livestock assets. The government demonstrated a higher influence on disease (27%) because most of the veterinary regulations lie within the government mandate. Disease is a complex challenge to address at a local level owing to its trans boundary nature and therefore requires government intervention. Emergence of the CC is still notable and further demonstrates its diverse support as it addresses all the ecological challenges. The CC influence on pasture degradation (29%) was notably higher considering it is a newly emerged institutional arrangement. This may be attributed to the CC comprehensive grazing management plan. The elders influence on ecological issues in 2012 is notably present unlike in the social and economic challenges. This suggests that ecological issues remain very significant to the pastoral communities possibly because pastoralism livelihood is very much hinged on ecological aspects and therefore having a larger impact on the pastoral livelihood. This finding also reinforces the fact that elders still have authority even in the current modern institution i.e. community conservancy.

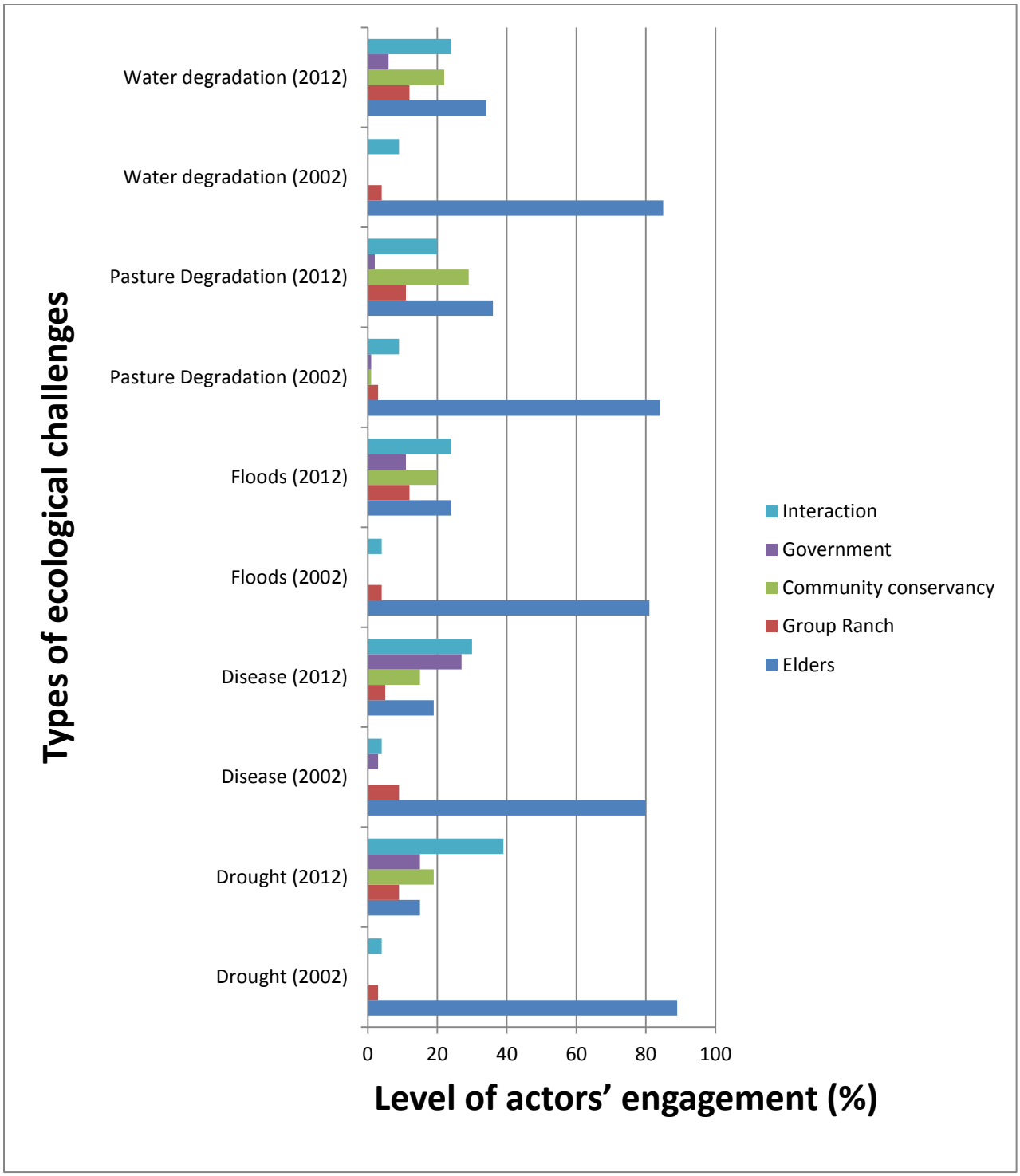

Figure 5:6 Ecological challenges and actors engaged in addressing the challenges

5.4 Conclusion

The work focused on assessing how the community institutional arrangements in Northern Rangelands of Kenya are rearranging themselves to be able to tackle the growing socio-economic and ecological challenges. The study was of significance because Northern Rangelands of Kenya are an example of a complex social ecological systems experiencing continuous and diverse change. The change which cuts across social economic and ecological aspects may be attributed to both internal and external drivers. To be able to ensure stability of the system, it is important to understand what contributes most to this stability within a system. By understanding where resilience resides in the system, one is able to understand what can take away or enhance it and consequently ensure that correct interventions are applied where necessary.

The study findings show modern community institutional arrangements are interacting in their operations thus demonstrating a co-management approach that is useful to address existing challenges. A decade ago, the elders had a substantive authority in addressing the social economic and ecological challenges, with a minimal impact by group ranches also noted. In 2012 the distinct elders' role has declined and a co-management approach characterized by an interaction between elders, group ranches and emergency of community conservancies has emerged. The elders' role is still inculcated within the group ranches and the community conservancy but the latter have assumed a semi-formal decision making structure in their management. The interactive scenario noted within the institutions reflects resilience thinking in the sense of a diverse stakeholder engagement.

Unlike conventional rangeland management that focuses on optimization of secondary production, a resilience based approach also considers the diversity of resources available from rangelands which are the foundation of livelihood security of both developed and underdeveloped rural communities. In this case, community conservancies are promoting a diversified livelihood through wildlife conservation as complementary revenue to livestock revenues. Communities such as West Gate are therefore receiving revenue that is injected into running of the CC institution and community projects.

Beyond flexibility, management approaches based on resilience need to view events in a broader spectrum (regional rather than a local context). The newly established County governments in Northern Kenya rangelands have a role in engaging the local institutional arrangements in their county management plans. The institutions have a wealth of knowledge, information and expertise on the rangelands which if tapped can enable draw practical strategies and interventions. The political environment influences decisions made at the County level as well as the community level. Often times when the political economy is not considered, the results tend to reinforce existing inequalities. The findings are useful as the government implements the National land policy that recognizes community land. The structuring of community land management needs to borrow a co-management approach that allows various stakeholders, internal and external to engage as indicated in this study.

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Chapter 6

6.1 General discussion

Northern Rangelands of Kenya are characterized by a communal property right system. Communities have traditionally been required to make decisions regarding natural resource management and socio economic development collectively through leadership offered by customary institutions. The customary institutions have however been challenged by the social economic and ecological changes attributed to rising globalization and climate change variability. Communities in the rangelands are therefore finding themselves in a place where they need coping strategies to adapt to the change in the social ecological systems. This has required exploring innovative pastoralists' institutional arrangements that can address the underlying issues in management of rangelands in changing times.

The overall objective of this study was to evaluate types of pastoralists' institutional arrangements and their changes overtime, value of ecosystem services benefits in their areas of operation, and their adaptation to socio-economic and ecological changes in the Northern Rangelands of Kenya. The pastoralist institutional arrangements investigated in the study were elders only management, group ranch committees and community conservancy board. Trust land and group ranch are the two land use systems within which elders, group ranch committees and community conservancy boards are providing management. Elders provided a customary institutional arrangement scenario, whilst a group ranch and community conservancy demonstrated some level of actor interaction scenario. The elders and group ranch committees management has been around for a long time, whilst the community conservancy board is a

recent type of management owing to a quick mushrooming of community conservancy in the last decade.

Findings in Chapter two confirm the evolving nature of the pastoralist institutional arrangements and their refocus on natural resource management. Specific institutional arrangements focused on distinct resource management a decade ago; however, most of the institutional arrangements are currently interacting and engaging in management of most of the resources. This finding suggests that an elder's only management could be challenged by a lack of capacity to deal with the new socio-economic and ecological challenges resulting to an interaction of actors. Further, the new type of management has capacity to provide management of various resources (water, wildlife, pasture and livestock, forest and land) as a result of its ability to interact and pull together efforts from different stakeholders.

Chapter three provides results of economic values in sites managed by different institutional arrangements (elders only, group ranch committee and community conservancy board). Results show that a community conservancy board (Westgate) management scenario recorded highest aggregate economic values (household and communal revenues) compared to an elders only and a group ranch committee scenario. This is despite of Westgate record of lowest household revenue compared to Kinna and Makurian. Findings indicate that a robust institutional mechanism (Westgate) is characterized by a semi-formal structure in its operation, has different interacting actors and is hinged on traditional management (elders). This kind of an arrangement has the ability to support communities diversify their livelihood and is therefore much more attractive to communities whose household revenues are meagre.

Results in Chapter four show the kind of external actors present and active within the study sites. The group ranch committee and community conservancy board scenario recorded a larger number of external actors presence (private sector, research institutions, NGOs, government, religious organizations and research institutions. The two management scenarios also have a semi-formal kind of management in place characterized by a constitution, election of membership, annual general meetings and employment of young educated youth to run day to day operations of the institution. The findings imply that external actors prefer to work with community institutional arrangements that are well structured because they serve as great entry points into the community. The government and NGOs role was specifically evaluated and both seem more interested in helping communities address the economic challenges. This is the case possibly because addressing economic challenges may seem as the easier route to achieving economic development. Communities however wish that the government and NGOs address social, economic and ecological challenges equally. This is an interesting finding pointing towards the need for a systems approach in tackling development. The underlying assumption is social and ecological challenges indirectly play a role in economic development. A case example is the high literacy levels in Kinna which contributed to the observed higher permanent employment opportunities and the vice versa for Westgate.

Chapter five presents' results that bring to the fore the need to employ a resilience approach in the Northern Rangelands of Kenya, often viewed as fragile socio-ecological systems. Results in the previous chapters demonstrate how community institutional arrangements are changing in management. The interaction is often described as co-management and is one of the indicators of resilience approach. Further, ability to diversify livelihood is another resilience indicator which

is also captured in this study. Westgate was the only institutional arrangement that supported communities tap their wildlife resource despite the fact that all the study sites were situated along wildlife corridors. This is largely attributed to Westgate institutional framework and approach on institution building (community conservancies).

6.2 Conclusions and policy implications

In conclusion, findings show that indeed traditional pastoralists' institutional arrangements have felt the pressure to maintain the status quo and are moving away from the norm. This was demonstrated by a diminishing scenario of rangelands management by elders' only systems and the emergence of a co-management scenario that engages various actors within and outside the community. Co-management further demonstrated better economic development strategies as a result of livelihood diversification providing alternative income sources especially in marginalized communities. The devolved county government has a significant role in engaging communities manage the rangelands sustainably to improve their livelihood by offering the needed bridge to the national government. How well the county governments recognizes the role of robust pastoralists institutional arrangements in addressing the underlying issues is a key determinant of how much mileage is made in improving livelihoods of people in the Northern Rangelands of Kenya.

This evidence is useful as the Kenya government implements the ASAL policy which seeks to promote ASALs regional development and is tied to other policies such as Kenya National Land Policy and the Kenya Vision 2030. In implementing these policies, a co-management approach in land management and economic development is significant for communities living in common property regimes such as the Northern Rangelands of Kenya. It is also useful evidence as the

government implements the Kenya Vision 2030, pointing out community institutional arrangement role in economic development in the Northern Rangelands of Kenya. This can be done by ensuring community institutional arrangements are represented and active in County economic development plans. The Lamu Port Southern Sudan-Ethiopia Transport (LAPPSET) corridor project is an example of an economic development program that seeks to unlock the potential of the rangelands. The success of such projects is hinged on ensuring communities living in this corridor are engaged in decision making and prioritized in developing employment opportunities.

Appendix 1 - Household survey tool

Effect of Institutional Arrangements on Value and Delivery of Pastoral Ecosystem Services in the Northern Rangelands of Kenya

HOUSEHOLD SURVEY QUESTIONNAIRE

ENUMERATOR NAME _____ ENUMERATOR CODE _____

DATE OF INTERVIEW (DD/MM /YY) /___/___/2013

START TIME _____

END TIME _____

A General Information

Questionnaire No. _____ Village_____

Region _____ Date checked _____

County _____ GPS Readings of homestead_____

Sub County _____ Longitude (W/E)_____

Ward_____ Altitude (m.a. s.l)

Name of household head (HHH) *[THE MAIN DECISION MAKER]* _____ Gender [___] 1 = Male 2 = Female

Name of main respondent *[IF DIFFERENT FROM HHH]* _____Gender [___] 1 = Male 2 = Female

Marital Status of the household head *Single* ☐ *Married (one spouse)* ☐ *Married (more than one spouse)* ☐ *Divorced* ☐ *Separated* ☐ *Widow/Widower* ☐

	Members of your household [*FIRST NAMES]*	**Age in years**	**Gender 1=Male 2=Female**	**Highest education level attained in years**	**Primary source of income** *[MOST IMPORTANT]*	**Secondary source of income** *[SECOND MOST IMPORTANT]*
1	Household Head					
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

Table 1

Primary and Secondary Sources of income codes

(1) Livestock rearing

(2) Herding

(3) Permanent employment (specify)_____

(4) Casual employment (specify)_____

(5) In school

(6) Pre-school age

(7) Others (specify) _____

B. Community decision making structures

1. What existing community decision making structure is engaging you in management of key ecosystem services using options listed below the table?

Ecosystem services management	**Community decision making structure engaging the community**	
	10 years ago	**Current**
Land tenure		
Livestock & pasture management		
Water management		
Wildlife management		
Forest management		
Other(specify)……		

Table 2

a)Elders b)Group Ranch c)Community conservancy

2. Show if different community decision making structures are interacting in management of ecosystem services using the options listed below the table.

Ecosystem services management	**Existing community decision making structure interaction**
Land tenure	
Livestock & pasture management	
Water management	
Wildlife management	
Forest management	
Other ……	

Table 3

a) Group Ranch & Elders b) Group Ranch & Community Conservancy c) Community Conservancy & Elders d) Group Ranch & Community Conservancy & elders e) No interaction f) Others specify…….

3i) Are you or any member of your household in leadership position of the decision making structure? Use codes below

Respondent and HH members	**Gender**	**Age**	**Engaged in leadership**	**Period of service**	**Position**	**Trained**
Respondent			□Yes □No			
			□Yes □No			
			□Yes □No			
			□Yes □No			

Table 4

Male =1 Female=2

Chairman = 1 Secretary = 2 Treasurer = 3 Other (specify) = 4

Trained =1 Not trained=2

ii) If trained, who offered training?

iv) How often do you access the training?

4. Show how community decision making structures are adapting in order to cope with the socioeconomic and ecological challenges by ticking appropriately using the options below the table.

Social challenges	**Community decision making structure engaging the community**	
	10 years ago	**Current - 2013**
Insecurity		
Lack of education		
Cattle rustling		
Negative culture practices		
Land tenure		
Bad politics		
Other ……		
Economic challenges	**Community decision making structure engaging the community**	
	10 years ago	**Current – 2013**
Poor infrastructure		
Lack of livestock markets		
Lack of employment		
Lack of financial services		
Middlemen/brokers		
Lack of entrepreneurial skills		
Untapped ecotourism opportunity		
Other ……		
Ecological challenges	**Community decision making structure engaging the community**	
	10 years ago	**Current – 2013**
Drought		
Floods		
Pasture degradation		
Water degradation		
Disease		
Other ……		

Table 5

a)Elders b)Group Ranch c)Community Conservancy d)Others (Specify…….

5 i) Do you understand how the new devolved county government works?

□ Yes □ Partially □ No

ii). Should the new county government recognize and work with the key current decision making structure (one that stands out in question 1)?

□Yes □ No

iii) If your answer to question 7 ii above is yes, rank according to your opinion what the new county government need to prioritize using the score; **Not important =1, Important=2, Very important=3**.

Ecosystem services management	**Rank level of priority by the new county government**
Land tenure	
Livestock & Pasture management	
Water management	
Wildlife management	
Forest management	
Product market creation	
Other ……	
Socio economic and ecological challenges	**Rank level of priority by the new county government**
Social challenges	
Insecurity	
Lack of education	
Cattle rustling	
Negative culture practices	
Land tenure	
Bad politics	
Other ……	
Economic challenges	**Rank level of priority by the new county government**

Poor infrastructure	
Lack of employment	
Lack of livestock markets	
Lack of financial services	
Middlemen/brokers	
Lack of entrepreneurial skills	
Untapped ecotourism opportunity	
Other ……	
Ecological challenges	**Rank level of priority by the new county government**
Drought	
Floods	
Pasture degradation	
Water degradation	
Disease	
Other ……	

Table 6

6. Rank the following external actors according to their level of engagement in addressing the socio economic and ecological changes. Use the codes **Not active=1, Active=2, Most active=3**

External actor engagement	**Rank**
Non-governmental organizations (NGO's)	
Government	
Private ranches	
Religious organizations	
Research institutions	
Private sector	
Others specify	
Others specify	
Others specify	

C. Value pastoral ecosystem services

1. List resources that are a source of your household income and rank them using the variables; N**ot important=1, Important=2, 3=Very important,** quantity you sell in a month and the prices, both in 2012 and 10 years ago.

Resources	**Rank**	**2012**		**10 years ago**	
		Quantity sold in a month	**Unit price**	**Quantity sold in a month**	**Unit price**

Table 7

2. List resources from which your community is obtaining communal revenue?

Resources	**2012**		**10 years ago**	
	Monthly revenue	**Annual revenue**	**Monthly revenue**	**Annual revenue**

Table 8

3. Show number of your household members in either casual or permanent employment, years of employment, salary earned and the employer.

Permanent employment	Casual employment	Start date of employment	End date of employment	Starting monthly salary	Current monthly salary	Employer

Table 9

4. List any other sources of income/funds i.e. micro credit, donations etc

Other incomes	2012		10 years ago		Source of funds
	Amount monthly	Amount annually	Amount monthly	Amount annually	

Table 10

5. Rank in your view principles of good governance of the key current decision making structure (answered in question 1) using variables; **Bad=1, Average=2, Good=3**? Use the key sources of income i.e. livestock, tourism, employment, microcredit etc to explain the principles.

Principles of good governance	Rank
Transparency /accountability	
Participatory	
Benefit sharing /fairness/equity	
Market creation	
Partnership creation	
Effectiveness and efficiency	

Table 11

Appendix 2 – Focused Group Discussions questions

1. Confirm the key decision making structure for management of natural resources?
2. How does it work?What is its role/focus or scope?
3. What are the changes within the previous 5 years in the way this structure works?what is causing the change?
4. Is it working effectively or is it challenged? If effectively explain .. If challenged explain……/describe effective community decision making structure?
5. How can it be improved? Who should play this role?
6. Is their fair gender representation in the structure i.e. men, women and youth?
7. What support does the structure require from the county government?
8. Which of the resources existing in the area are sources of income? Livestock, wildlife, gums and resins, herbal medicinal products, sand.
9. Where do you find market for these resources?
10. What role does the decision making structure play in helping tap available resources for livelihood?
11. How does the decision making structure influence market for the above named resources?

Appendix 3 – Key informants checklist

Table 1 - Key informant profile information

Country: KENYA			
County		Division	
Date of interview		Duration of interview	
Key informant interviewed: (Government official, NGO or CBO representative, Leaders of Institutional arrangements, Opinion leader etc.	Name of the Organization		
	Title of the Informant		
Name of the Interviewer			
Name of the Note Take			

Introduction

The aim of this study is to evaluate the effect of different institutional arrangements on direct and indirect values of pastoral ecosystem services and how these institutions are adapting to socio economic and ecological changes. The proposed baseline has the following components; pastoral institutional arrangements status, changing dynamics and their influence on the pastoral economy.

A: Specific question on the pastoral economy

a) What is your view on the status of the pastoral economy, with a focus on Laikipia, Samburu and Isiolo?
b) What goods and services act as a source of income within the pastoral economy? Rank the goods and services in order of importance
c) How is value added for each of the goods and services? Who is involved? How can this be improved?
d) What service delivery mechanisms exist for each of the goods and services? Who is involved? How can this be improved?
e) What factors social (human population, conflict etc), economic (infrastructure) or ecological (drought floods) affect value addition and service delivery of goods and services? How many households are found within a county/within a Group Ranch
f) Do pastoralists understand their economy? Is this important? What measures are needed to support this?

B: Specific questions on pastoral institutional status and the changing dynamics

a) What are the existing decision making structures in Laikipia, Samburu and Isiolo?

b) What has been the state of these structures over the years? What are the reasons for the change/what is causing change?

c) Rank different decision making structures according to their importance and relevance in the communities they operate in?

d) What would effective community decision making structures look like? How can this be achieved?

e) How do different decision making structures interact? Is the interaction working? How does the interaction affect efficiency?

f) What impact will the county government/counties have on the grass root decision making structures? How can the existing decision making support the county government?

g) How does the role of women and men differ in decision making? Is this changing?

C: Specific questions on institutional arrangements influence on pastoral economy

a) How do the existing decision making structures (listed in question 2) influence resource management? What is the challenge? How can this be improved? Which other players are involved in supporting this? Are there missing players that should be on board?

b) How do the existing decision making structure affect value addition and service delivery of goods and services (listed in question 1)? What is the challenge? How can this be improved? Which other players are involved in supporting this? Are there missing players that should be on board? What kind of support do the decision making structures require to improve value addition and service delivery?

Appendix 4 – List of key informants interviewed

	County	Institutions arrangements /organizations	Stakeholder /contact to be interviewed	Contact
1	Laikipia - IA's	Laikipia County Council	Councillor	Paul Shuel
2		Makurian Group Ranch	Group Ranch manager	Nookisho
3	Samburu – IA's	Samburu County Council	Councillor	
4		West Gate Community Conservancy	Conservancy Manager	Daniel Letoyie
5	Isiolo - IA's	Isiolo County Council	Councilor	Golicha
6		Garba Tula administrative zone – Trust land	Dedha elder	
7	Key organizations	Northern Rangelands Trust	Community Development Manager	Tom Lalampaa
8		African Wildlife Foundation, Nanyuki	Heartland coordinator	Benson Lengalen
9		Laikipia Wildlife Forum, Nanyuki	Community field officer	David masere
10		CETRAD, Nanyuki	Researcher	Boniface kiteme
11		Kenya Wildlife Service, Nanyuki	Senior Warden	Dickson Too
12		East Africa Wildlife society, Nairobi		Alex Ngare
13		Resource Advocacy Programme (RAP)		Hussein
14		World Vision, Nairobi		Susan Karimi
15		IUCN		Hassan Boru
16		International Livestock Research Institute, Nairobi	Researcher	Philip Osano

Appendix 5 - West gate financial records

	WESTGATE COMMUNITY CONSERVANCY	
	NGUTUK ONGIRON GROUP RANCH	
	COMMUNITY INCOMES & EXPENDITURES JAN-DEC 2012	
INCOMES	**Income**	
	Opening balance January 2012	1,753,900
	Sasaab Lodge income 60%	3,096,292
	Samburu County council	780,000
	Earth Watch Institute	13,120
	Ewaso Lions Project	25,000
	Aphia Plus	49,500
	Conservation fee	12,500
	TOTAL INCOMES	5,730,312
EXPENDITURS	**Expenses**	
	Education-Bursaries	1,762,300
	Pre-schools & primary school Teachers salaries	636,000
	Communication -Chairman Airtime	12,000
	Community meetings-lease agreement process	417,340
	Postal Corporation of Kenya-Payment for address	6,000
	AGM Cost	461,240
	Agreement signing cost	100,200
	Travell and Subsistance	290,720
	Health- Hospital bills for poor community	193,020
	Community awareness Trainings at naisunyai	73,324
	Community volunteers rangers	15,000
	Marathon- 2012	106,830
	Water project repair cost at Naisunyai & lpus leluai	46,050
	Grazing Plan	121,092
	Students annual meeting 2012	24,820
	Micro-credit programme for youths	500,000
	TOTAL EXPENDITURES	**4,765,936**
	Balance/ deficit	964,376