



Pastoralism and Oil Extraction in Kenya: Livelihood, Adaptation and Resilience of Pastoral Community in Turkana County

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Abstract

Oil extraction and connexions as witness lately has displace pastoralists from significant grazing sites and migratory routes. This has resulted in actual livelihood problems and high levels of concern. Turkana County land is almost all communal land held in trust by the county government of Turkana for pastoralist communities, but the majority has been allocated as oil blocks in agreements with investors. It is uncertain how much land will ultimately be inaccessible to pastoralist. Extraction of oil can upsurge inequality, ensconce separations among different groups which possibly fuel conflict which will widen the gap between government and people thus promoting inequality. The main objective of the study was to find out how oil extraction impact pastoralists' livelihood especially in Turkana East and South in Turkana County. Descriptive survey research design was applied whereby simple random technique was used on stratified samples. Instruments of data collection were; questionnaires, focused group discussions, interview schedules and observation. The study found out that Oil exploration exacerbates water scarcity as a lot of ground water is required in every step and land will be lost to the extracting companies for creation of Oil camps, roads networks and has started to deny the pastoralist pasture land for their animals. The findings indicated that the livelihood of the Turkana people is largely based on nomadic pastoralism. The health of pastoralists is in danger since water streams and rivers have been contaminated with toxics discharges from the explorations and drilling of oil in Turkana County. Fire flaring and emission of toxic gases to air has started causing eye and skin complications.

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Government should carry out thorough assessment on oil exploration and drilling to ascertain the impact of their entire process. In addition, better local and national policies on oil extraction be formulated and regulations put in place.

Keywords: Pastoralism; Turkana County; Oil extraction; Community; Livelihood; Adaptation and Resilience.

1. Introduction

1.1 Pastoralism and Oil Exploration

Pastoralism is an economic production strategy whereby people keep animals and is mostly practiced in ASAL areas. Pastoralism is a way of life of more than a quarter of the World's land surface which includes both the poor and rich countries [1]. Pastoralism has been the way of life for over 20 million people across sub-Saharan Africa [2]. According to [3], there are over 13 million pastoralists and agro-pastoralists who rely on livestock, and they live in the arid and semi-arid lands of Kenya. The ASAL citizens make up 36 % of the Kenyan population that is as per 2009 national censuses. Further analysis showed that the population of Arid and semi-Arid was 12 % and 24% respectively [4]. In regions where water and pasture resources are limited, pastoralism is a well-suited form of livelihood and production system [5]. Pastoralism is the major source of livelihood of the Turkana people [6]. According to PFIM report, 64% of Turkana community is dependent on pastoralism and 16% is dependent on agro-pastoralists [4]. Pasture, water, land and livestock (mainly cattle, goats, sheep, donkeys and camels) are the main resources for the Turkana population [7]. The livestock in Turkana is kept for economic and domestic reasons whereby it is used for food, payment of education fees, payment of health services and payment of dowry among other uses [8]. The kind of pastoralism practiced by the Turkana is nomadic pastoralism which is characterized by communal land ownership and keeping of diverse herds and a large size of herds [7]. Land is important for grazing of livestock and habitation. Livestock kept in Turkana is used to support livelihood through payment of school fees for children, payment of health services, food and payment of dowry among other things. The Turkana Community livelihood especially in Turkana East and South where oil extraction is taking place, Tullow has dug shallow waste and catchment pits that it deposits hazardous oil waste as shown in Figure 1 and 2 below.



Figure 1



Figure 2

Source: Author's

Extractive industry offers both direct and indirect jobs to the host community [9]. This is in the form of Community Liason officers, Village Socialization officers, security and at times clerical jobs. The host community seeks these jobs and hence decreasing community dependence on pastoralism. Burning of fossil fuels (Oil) is a major driver of climate change [10]. Climate change will affect rainfall availability in Lokichar Basin. Rainfall in Turkana is already unreliable and poorly distributed even before Oil exploration and so with the climate change and change of temperature then the situation will be worse and thus drought experience will increase. Without rain, there will be no pasture for the animals and thus loss of livestock. This threatens the future of pastoralism in Lokichar Basin. [9] asserts that governments view pastoralism as a backward and primitive practice. It is against such background that pastoral communities have always suffered marginalization and discrimination. Turkana Community therefore can be lured into such mentality in the name of livelihood changing dynamics and thus the collapse of pastoralism in the region.

1.2 Problem Statement

In the oil exploration and drilling zones, some riverine pasture and migration routes for pastoralists has become inaccessible. This has force them to walk longer distances to access grazing fields and water. The evolution of individual land use especially in urban set up, oil exploration and extraction activities, and control of land use has severely limited pastoralists' mobility and general access to natural resources such as water and pasture This is evidence in many parts of Turkana East (Nakukulas and environs) and Turkana South (in areas between Loperot and Lochwa) whereby displacement of pastoral communities and usage of grazing land has already taken place. Nomadic way of life in Turkana County is transhumance which is characterized by risk-spreading and flexible mechanisms such as mobility, large and diverse herd sizes and herd separation and splitting. The questions that need to be asked are; what are pastoral community adaptation and resilience mechanisms towards the effects of oil extraction and lastly, how does oil extraction impact pastoralists livelihood in Turkana County. Both national and county governments need to put strategies to protect the livelihoods of people living around these areas and more importantly to avoid natural resources conflicts. Pastoralism is the main source of livelihood for the Turkana people are over a million now.

1.3 Main Objective

To assess how oil extraction affects pastoralists livelihood in Turkana County

Objectives

1. To assess pastoral community adaptation and resilience to oil extraction in Turkana County
2. To explore how oil extraction affects pastoral livelihood in Turkana County

1.4 Area of Study

The study was conducted in two sub-counties (Turkana East and South) in Turkana County namely. This region is characterized by a topographically varied, semiarid to arid landscape and livelihood activities are exposed to a significant drought risk. Traditional nomadic animal husbandry has been the dominant economic activity for

centuries

2. Literature review

Empirical review

Pastoralism is well-suited livelihood and production system that makes efficient use of highly limited water and pasture resources [5; 11]. The limitation of pastoral mobility by the government of Kenya neighbouring governments (mainly Uganda and Ethiopia and partly South Sudan) had decreased the adaptive capability of pastoralists [12]. An increase in rainfall variability and higher drought frequently, associated with global climate change, pose significant challenges for pastoral communities [12; 6]. The oil exploration in Turkana exposes the communities to environmental challenges, which in turn interact with changes in temperatures and rainfall [7]. Operators and marketers in the oil and gas industry face a range of challenges, associated with growing concerns about the environmental impacts of petroleum extraction [13]. Pastoralists from Lopii and Nakukulas mentioned that the noise and vibrations caused by the drilling disturb and scare the livestock [7].

Theoretical review

The study used the following theories to support this study; grievance theory, resource-predation theory and resource mobilization theory. The explanation of the theories are as follows; First, Grievance Theory – claims that segments of the population, or regions, might feel deprived of the benefits of resource-related income, while possible carrying the ecological burden of production, and therefore take up arms. Second, Resource-Predation Theory – challenges, claiming that oil rebellions are really large-scale preparations of productive activities and are motivated by greed rather than true grievance. Lastly, Resource Mobilization Theory – is a theory that seeks to explain the emergence of social movements. It asserts that social movements form when people who share grievances are able to mobilize resources and take action.

2.1 Livelihood of the Turkana Community

Livestock is a fundamental pastoral capital, besides functioning as a means of production, storage, transport and transfer of food and wealth [8]. The Turkana pastoralist community keeps livestock such as cattle, donkeys, sheep, camels and goats. The livestock kept plays multiple social, economic and religious roles in pastoral livelihoods: they can be a source of food, can be sold to get cash for paying education of children and health care services as well as other services, payment of dowry, symbol of prestige and wealth. On the contrary, livestock in Turkana pastoralist community has been the source of conflict between the Turkana and Pokot, a neighbouring community that also practices transhumance nomadic pastoralism [6]. Pastoralists contribute approximately 70% of the total marketed livestock in Kenya [14]. Therefore, pastoralism has the capacity to contribute to the country's GDP and hence worth pursuing.

On the contrary, Pastoralists are one of the most researched yet least understood groups in the world. Despite decades of empirical research, many policy makers, government staff, NGO personnel, and the broader public do not fully understand or appreciate the rationale and dynamics of pastoral livelihood systems. This poor

understanding has resulted in inappropriate policies and development interventions, which have systematically undermined pastoral institutions and their strategies for responding to environmental adversity, particularly in arid and semi-arid environments. Ever since colonial times, policy makers have viewed pastoralists as archaic, unproductive and environmentally damaging relics of the past, which need to be brought into line with “progressive and modern” development. It is against such background that pastoralists suffer disproportionately from insecurity, poor access to social and economic services, social dislocation, political marginalization and poverty. Pastoralism is viewed as being irrational, short-sighted and even wasteful. Pastoralism is seen as primitive due to its connection with conflicts (cattle rustling), a phenomenon that is so common among the pastoral communities in Kenya.

In Kenya for example, pastoralists generally lack the political or economic “weight” required to influence policy decisions. Among the many reasons for this, two elements should be taken into account: First, governments have little economic or political interest in promoting pastoral interests *per se*, as they tend to see pastoralists as a “minority vote”, given the fact that there are relatively few of them occupying what is considered to be marginal land with little economic potential; Although pastoral civil society groups are beginning to occupy a prominent place in Kenya, and are commanding an increasing proportion of development aid, they remain relatively weak. In many cases they are ill equipped to articulate and defend the interests of their members, and have limited financial resources and poor management skills.

3. Methodology

The researcher used both qualitative and quantitative approaches in carrying out the study. The main research method applied was a qualitative approach based on individual interviews, small group interviews, focus group discussion and observations. The study targeted residents of Turkana East, Central and South in Turkana County side as; Youth and Women groups, Vulnerable members, Civil servants, Non-Governmental, Organizations (CBOs, CSOs, FBOs), and lastly, Business men and Key Informants. The study employed a multidimensional approach to data collection. Instruments of data collection were; questionnaires, focused group discussions, interview schedules and observation. Semi structured questionnaires were the main instruments for collecting primary data. Interview schedule was also administered to the selected respondents who did not know how to read and write on their own. The researcher used focused group discussion to collect information from groups of people who share the same characteristics or are of the same age.

4. Findings

4.1 Livelihood Adaptation and Resilience

Livelihood adaptation and resilience is the ability of livelihood to cope with and recover from stress and shocks. Such resilience to stress and shocks is central to sustainable livelihoods. Those who are unable to adapt are vulnerable and therefore not likely to achieve sustainable livelihoods. Pastoralist populations today more than before face more pressure to their way of life. This pressure takes the shape of stress and shock for pastoralist communities. Among the stress and shocks faced by pastoralism today are: over population, land grabbing and hence loss of pasture land to private farms, ranches, game reserves and urban areas, drought, floods, conflicts,

raids, and inequality in livestock economy among others [15]. These stress and shocks expose the pastoralists to vulnerability. With the recent discovery of oil in Turkana, it is clear the Turkana pastoralist lose the pasture land as the land is occupied by the oil activities. See Figure 4.1 and 4.2 below, whereby Tullow company has used community land to build oil storage tanks and oil purifies tanks (in rectangle shape) respectively.



Figure 4.1



Figure 4.2

Source: Authors

Pastoralism has proved in various ways to be ineffective in meeting all the economic and social needs of the pastoralists. Therefore, there is great need to employ supportive activities to supplement pastoralism. The loss of pasture land of the Turkana Community to the oil companies is already a threat to their source of livelihood because their animals can no longer access pasture from the land occupied by the oil companies. Therefore, the Turkana pastoralist community needs the capacity for livelihood adaptation in order to enjoy sustainable livelihoods. There are a number of livelihood diversification opportunities available in Turkana which are in themselves adaptation mechanisms for their threatened pastoral- oriented way of life. Some of these livelihood diversification opportunities existent in Turkana County are;

4.1.1 Commercialization of Livestock

Turkana Pastoralist Community sell their livestock in order to earn some income that will enable them to pay school fees for their children, pay for medical services and other services as well as buying food for the household members. This practice has led to people coming to sale yards from different places both as buyers of the livestock and sellers of the livestock. Below is a photograph of a livestock sale yard in Lodwar town, the headquarters of Turkana County.



Figure 4.3: Livestock Market.

Source: Author’s

Turkana pastoralists at a market as shown by Figure 4.3 which was taken in morning around 7.30am above shows the livestock market in Lodwar is packed with goats, traders and men in traditional dress. These people come to the market for commercialization of livestock. Livelihoods in Turkana are primarily based on extensive livestock production and most cash earnings come from sales of livestock or livestock products [16].

Table 4.1: Livestock Populations in Kenya.

Animal(s)	Total Population (From 2009 Census)	ASAL Population	Highland Population
Cattle	17,467,774	12,155,974 (70%)	5,311,800 (30%)
Sheep	17,129,606	14,354,925 (87%)	2,174,681 (13%)
Goats	27,740,153	25,250,865 (91%)	2,489,288 (9%)
Camel	2,971,111	2,968,670 (100%)	2,441 (0%)

Sources: 2009 Census and IGAD (2011) – Contribution of Livestock to the Kenyan Economy

4.1.2 Ecotourism

According to [17], many extensive pastoralist areas in Eastern Africa are increasingly being seen as potential biodiversity reserves. Sites in Turkana that possess latent ecotourism potential include: Eleye-Springs, Lobolo and Choro Island (where numerous crocodiles abide), Kapedo Springs and the Turkana south (KWS) Game Reserve in Kainuk. Indeed, an ecotourism circuit has been put forward for Turkana that features Turkwel Gorge Dam, Nasalot National Park, Southern Turkana Game Reserve and the Lake Turkana area (including the

islands and Koobi, famous for its archaeological importance).

4.1.3 Charcoal production

Charcoal is primarily produced along the Turkwel and Kerio Rivers and is sold along the main highway between Kainuk and Lokichoggio. Unfortunately, whilst charcoal production offers small returns to those that produce it, due to the destructive nature of current practices, the production and sale of charcoal is illegal in Turkana [18]. Efforts are currently being made to promote sustainable charcoal production across the ASALs.

4.1.4 Fresh milk, dried milk and dried meat sales

Fresh milk is sold throughout Turkana County during, and straight after, the rainy seasons as milk is often in surplus and can be exchanged for food commodities with a higher calorific value. Fresh milk is generally not traded during the dry seasons or prolonged droughts. Whilst once a popular practice, and a tried and tested way to store milk during times of milk surplus, few Turkana residents still produce dried milk. Pastoralists sell their milk for cash in order to purchase consumer goods and to pay school fees. Whilst dried meat is still produced for home consumption in the interior during times of surplus livestock, there is no notable market for dried meat either in Turkana or Kenya as a whole.

4.1.5 Collection and sale of wild fruits

The collection and home use or sale of wild fruits is widespread throughout Turkana County. The most common fruits sold include Doum Palm (date-like), Ngakalalio, Edung and Edapal, and Ebei. These wild fruits are collected by individuals and taken to market where they are sold.

4.1.6 Casual and waged labour

According to [19], demand for casual labour in Turkana is in the form of agricultural or building jobs. However, in the case of agriculture, most casual jobs are available in the wet season with some herding opportunities in the dry season. Unfortunately, the lack of work opportunities in Turkana has led to many youngsters, often having completed their schooling, loitering around the principal urban centres, many of which turn to crime. Within Turkana County, there is a distinct lack of opportunities for waged or salaried labour. Even then the oil activities have provided a ground for casual labour, whereby some of the local residents have been absorbed by the oil companies as security guards and others do laundry and even cook for the staff of the oil companies.

4.1.7 Honey Production

According to [20], honey production is a commercially viable enterprise, especially along the riverine ecosystems (Turkwel and Kerio Rivers) and higher altitude locations close to the Ugandan border. The principal areas of honey production include Turkwel (Toyarabon Women's Group, Turkwel Division), Kalemunyang (Turkwel Division), Lokapel (Katilu Division), Kanaodon (Katilu Division), Kainuk, Loyapat (Kainuk Division), Lokwar, Ekwar, Kaptir, Nakwamuru, Kapelibok and Oropoi.

4.1.8 Fishing

Fishing in Lake Turkana is another standing form of livelihood diversification in Turkana County. Fishermen along Lake Turkana follow the patterns of fish movements. Pastoralists supplement their livelihood by selling fish. While fishing is primarily a male dominated occupation, women actively fished the Ferguson Gulf, close to Kalokol, until it dried up due to siltation and shrinking water levels in Lake Turkana. It is also claimed that fish numbers have declined due to the shrinking water level in the lake brought about by frequent and severe droughts and damming of the River Omo that flows from Ethiopia. Probably, the recent discovery of oil along the shore of Lake Turkana may be another danger to the fishing activities in Lake Turkana.

4.2 Livelihoods

Table 4.2 below shows that 82.7% of the local residents (Households) owned animals whereas 17.3% did not own animals. These findings confirm that pastoralism was the main source of livelihood for the Turkana people as asserted by [2]. The animals kept were mainly goat, sheep, camels and there also cattle and Donkeys.

Table 4.1: Do you own animals?

	Frequency	Percent
Yes	91	82.7
No	19	17.3
Total	110	100.0

The local residents obtained their animals by inheritance, through dowry, some of them bought their animals, through donations from friends and relative, while some acquired by way of raiding their neighbouring communities especially the Pokot of Kenya. The fact that some animals were obtained through raids confirmed the conflicts between the Turkana and Pokot of Kenya, who for ages have engaged in the primitive behavior of cattle rustling due to the fact both tribes have suffered equal marginalization by the GOK. Other livelihood activities that the Turkana pastoralists were engaged in were collection of wild fruits, fishing, charcoal burning, basket weaving, making mats and honey production.



Figure 4.2: Turkana Pastoralist with his camels drinking water.

Source: Authors

4.2.1 Oil discovery and loss of land

The discovery of oil in Turkana brought dramatic changes to the County. One crucial issue was the loss of grazing land as shown in table 4.2 below. A total of 88.2% of the local residents affirmed having lost their land to the oil drilling activities whereas 11.8% of the respondents denied the loss of land to the oil drilling activities. The local residents lost their grazing land to oil extraction investors (Tullow Oil Co. and African Oil Corp.) due to the fact that land in Turkana was communally owned and so the local residents lacked the individual right of land ownership. As pointed out by [21], land is a natural capital that is necessary for survival. Land is a major livelihood resource necessary for sustainable livelihood. Loss of land for grazing has disastrous impacts on the livelihood of the Turkana pastoralists whose livestock need pastureland.

A Turkana herdsman from Turkana South District said “...Tullow Oil Company (Emoit) has fenced our prime grazing areas around Etuko land is now inaccessible to our animals...our pasture lands are now gone... (Interview with Ekeno Lokol, June, 5, 2014). Emoil is the Turkana word for any outsider (foreigner) who does not belong to the Turkana ethnic group.

Table 4.2: Have you lost land to the oil drilling activities?

	Frequency	Percent
Yes	97	88.2
No	13	11.8

It was evident that Tullow Oil had fenced lands that the Turkana previously used for grazing their livestock and this raised concerns among the Turkana pastoralists who felt separated from this important natural resource. This loss of grazing land is stress to the local Turkana residents and hence the local Turkana residents become

vulnerable. These findings confirm the thought of [15] that pastoralist populations today face stress and shocks due to loss of land for private firms, ranches, game reserves and in the case of Turkana pastoralists, loss of land for establishment of oil camps.

A pastoralist from Locher Edome in Turkana Central District said "...These outsiders (Tullow Oil) have taken away our bank...Land for grazing our animals is our bank and now these outsiders have taken away and fenced it... (Interview with Lopesurmoe Ekai, June, 28, 2014).

Denying the local residents access to this natural capital rendered them vulnerable and so exposed them to the stress of finding a way to make a living because it was from the grazing land that the livestock got pasture and consequently the livestock were the main source of livelihood for Turkana pastoralist community. When asked how the grazing land was taken by the Tullow Oil Company for its activities, the local residents said that the land was given to the Oil Company by the local politicians and the national government.

One herdsman said "...the politicians sold our land to Tullow oil...They told us that Uhuru (The President of Kenya) has given the land to Tullow and we could not to alter that decision...(Interview with Lopulmoe Losike, June 28,2014).

The fact that the local residents had little room to alter the government decision of giving the land to the oil company as revealed in these findings confirmed that oil discovery comes with less democracy [22]. This means that the leaders can suppress the opinions of the local residents and give them no room in decision-making. This situation poses a great danger to the democratic rights of the citizens.

A woman in Turkana East District further said "...these outsiders (Tullow Oil) promised to bring us food and because we needed food, our local leaders had to give out the land to get us food... (Interview with Akiru Lokeno, July,3,2014).

4.2.2 Oil discovery and loss of means of livelihood (Pastoralism)

Following the loss of grazing land was the loss of means of livelihood (Pastoralism). Figure 4.2 below shows that 62% of the respondents strongly agreed that oil discovery in Turkana led to loss of means of livelihood (Pastoralism), 12% agreed to this assertion, 8% were neutral, 9% disagreed and 9% strongly disagreed to the loss of means of livelihood.

One herdsman said "...We shall die with the loss of our livestock and your work will be to bury us...(Interview with Ekeno Losire, July, 2, 2014).

These findings confirm the assertion of [23] that the greatest threat of oil discovery is the loss of means of livelihoods. In Ghana, for example the inhabitants of Cape Three province, who depended on fishing for their livelihood, lost access to the sea and consequently lost their means of livelihood, that is, fishing.

The discovery of oil in Turkana County puts pressure on pastoralism and leads to the disappearance of

pastoralism as a way of life for the Turkana residents as shown in figure 4.2 below. Loss of means of livelihood for Turkana pastoralists rendered them to depend on oil-related jobs for economic activities and such overdependence on oil-led economy is a manifestation of the Dutch disease. The Dutch disease is known for its suffocation of other economic means thereby leading to over-dependence on oil economy. This was the danger that was seen with the suffocation and change of local economic activities especially pastoralism.

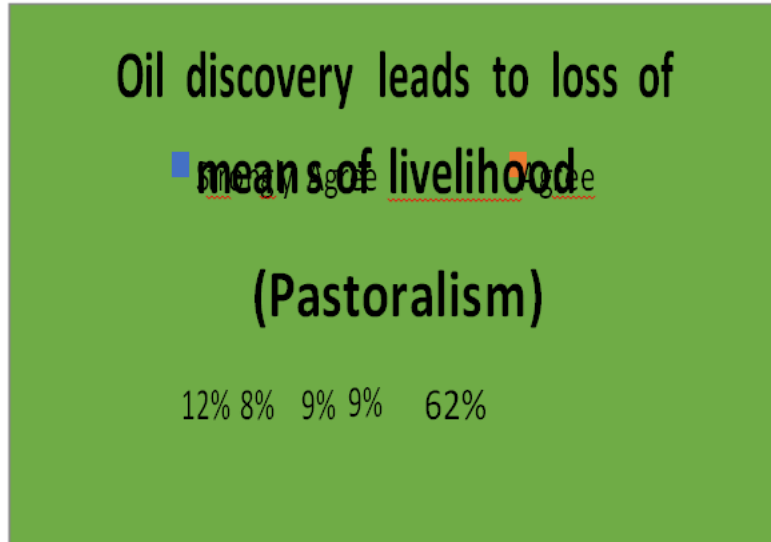


Figure 4.1: Oil discovery and loss of means of livelihood (Pastoralism).

Even then the local residents of Turkana County have devised ways of living despite the destruction of pastoralism. With the danger of the extinction of pastoralism, the local residents of Turkana County have crafted certain survival strategies to be able to cope with the change of lifestyle. Some these survival strategies include: practicing agro-pastoralism, education of their children, seeking casual labour, charcoal burning, commercialization of their livestock, fishing and reduction of family expenditure among others.

4.2.3 Livelihood adaptation Mechanisms

The findings in Table 4.5 below show that livelihood adaptation is central to sustainable livelihoods as asserted by [15]. Livelihood adaptation mechanisms enable the local people to cope with the stress brought out loss of their means of livelihood as a result of oil discovery in the region. Table 4.5 below shows that 61.1% of the respondents from the local institutions suggested education and training as a means of adaptation for local residents due to the loss of their livelihood (Pastoralism), 22.2% of the respondents suggested payment of monetary compensation to the local residents for the loss of their livelihood, 11.1% suggested that the local Turkana residents should be given casual employment for them to adapt to the loss of their livelihood and 5.6% suggested relief food as a means of adaptation to the loss of pastoralism. Local stakeholders were convinced that the local residents of Turkana County will not be worse off if the livelihood options mentioned below are implemented.

The findings in table 4.3 below show that human capital (education and training) and economic capital (payment of monetary compensation and offering casual employment) were the most important livelihood resources for sustainable livelihood.

Table 4.3: Livelihood adaptation Mechanisms to be given to the local residents

	Frequency	Percent
Education and training	11	61.1
Payment of monetary compensation	4	22.2
Offering casual employment	2	11.1
Relief food	1	5.6
Total	18	100.0

These findings therefore revealed that the residents of Turkana County needed to be empowered economically and also get an opportunity for education so that they can be able to cope with the stress caused by loss of means of livelihood with the loss of grazing land resulting from the discovery of oil in the region.

5. Conclusion and Recommendation

5.1 Conclusion

The community, county and national governments need to approach resource extraction carefully and making sure policies and modalities are put to place. This because extraction of natural resources can increase inequality, ensconce separations among different groups which possibly fuel conflict which will widen the gap between government and people thus promoting inequality. The collaboration of all stakeholders who are not limited to; government, extractive sector companies, civil society organisations and independent oversight institutions) in this sector will help in mitigating these challenges [24].

5.2 Recommendations

1. The government and partners should establish a national development framework for sustainable pastoralism. According to [1], to realize the potential of pastoralism as a contributor to the Green Economy will require a global leadership. This means that development agenda must address gaps in the Millennium Development Goals that permitted pastoralism to be left behind, and must predominantly address county and national government inequalities as well as issues of natural resources governance at local level.
2. To support the contribution of pastoralists in strengthening local governance and improving natural resource planning, it is important to incorporate pastoralists into the development mainstream through improved human capital and knowledge.
3. In order to appreciate the value of the pastoralists in-depth, the ecological and economic monitoring for

pastoralists must be separated from the costs and benefits of rigorous and pastoral livestock segments in financial arrangement.

4. To connect pastoralists better to the local and national livestock markets there is need promote growth in pastoralist sector. Coming up with factories that process livestock products is very crucial in promoting their produce. Pastoralists have environmentally sustainable products such as milk, hides, wool, meat and fibres that are needed to reach the market.

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