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Displacement for Development: The Nature of Oil-Induced Displacement of Households in Turkana County

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Abstract
This study sought to examine the displacement of households in the Lokichar-Kochodin basin due to the discovery and mining of oil in Turkana County. Guided by Anthony Giddens' "Structuration Theory" in exploring the social processes associated with oil-induced displacement, a cross-sectional survey research design was adopted. A mixed method approach was further employed to collect data using questionnaires, focus group discussion (FGD) guides, and key informant interview (KII) guides. Both quantitative and qualitative analysis was performed through Statistical Package for Social Sciences (SPSS) Version 21 and Nvivo, respectively. The study found that the displaced households experienced loss of land for cultivation, and grazing, loss of social infrastructure, loss of residences, and overall loss of their livelihoods. The study concludes that oil-induced displacement, as a category or cause of development-induced displacement, is associated with adverse environmental, human-social, economic, and physical livelihood vulnerabilities for the affected populations. Therefore, it is recommended that the government of Kenya should contemplate passing a law that necessitates compensation for affected victims in the line of development.

Key terms: Development, displacement, household, livelihood, oil mining.

INTRODUCTION

Development is one of the major aspects of a country's economy that drives the nation into sustainability. However, this is often achieved with the country being set to improve in its various sectors, among them the Oil and petroleum industry, which across the globe is one of the sectors upon which many others depend. In oil mining, there is a likelihood that populations within the oil discovered regions are displaced to dedicate the area for only mining. According to Owen and Kemp (2015), displacement is when an individual or a group of people are involuntarily deprived of their surroundings. Subsequently, they are deprived of their land, which is the key area of their social, cultural, and economic dependence, and which, in most cases, they do not receive any compensation for.

The discovery of the oil in Lokichar-Kochodin Basin has been considered a blessing to socio-economic development and a vulnerability to the local population. Reports indicate that among the key risks (vulnerabilities) arising from the emerging extraction of oil in Lokichar-Kochodin Basin included permanent loss of residential structures, loss of land for grazing and cultivation, loss of sacred and burial sites for the local community, loss of social infrastructure, and most importantly loss of community's livelihoods (Obongo, 2018). Oil-induced displacement, as a category of development-induced displacement, is a growing and widespread phenomenon associated with increased environmental, human-social, economic, and physical vulnerabilities for the affected populations. As noted by Ogwang and Vanclay (2019), the mining of oil implies that there will be various massive projects in the extraction regions, which often destroy the socio-economic asset bases of the affected populations. According to Alert (2015), population displacement implies a physical, social, and cultural displacement of individuals. Physical displacement denotes the loss of shelter and involuntary relocation and resettlement due to oil-related activities in a mining area. Economic displacement occurs when people and households lose their physical assets or access to these assets, which eventually results in severe loss of means of livelihood, including their sources of income as a result of mining-related land acquisition and limitations on land use. Adeola and Adeola (2019) note that oil extraction and development initiatives have been accompanied by two fundamental outcomes; the first is an optimistic expectation of a positive outcome around improved socio-economic development. In the optimistic expectation, extraction and development initiatives have been expected to generate employment opportunities, business or trade opportunities, and better livelihood, all of which have remained beyond the capacity of the local population (Adeola & Adeola, 2019). The second outcome is a negative effect that pertains to the increased vulnerability (risk) or impoverishment and displacement of indigenous populations. This paper looks into the nature of such negative outcomes as displacement occurring as a result of the oil mining in Turkana County and particularly in the Lokichar-Kochodin basin.

LITERATURE REVIEW

In 2012, crude oil was discovered in Kenya in the Lokichar-Kochodin Basin of Turkana County, which was followed by a series of explorations, drilling of the initial seven (7) wells and development of the initial infrastructure. By 2018, 21 wells had been drilled at the Lokichar-Kochodin Basin with an estimated 600 million barrels of recoverable crude oil (Golder & Ecologics, 2020; Golder, 2018). In addition, it was projected that when fully operationalized, the oil production would have absorbed approximately 1,085 hectares of land.

The discovery and mining of natural resources such as water for hydropower, minerals, and oil present immense benefits for societies inform of economic growth, job opportunities, revenues, and overall improvement in standards of living for a country's populace. Arguably, there are other shortcomings that populations in these regions encounter, among them; poverty, loss, and dispossession. The projection on energy increase is expected to increase by 50% by 2030, therefore, doubling the pressure on natural resources and the effects of impoverishment and displacement of the human population (Golder & Ecologics, 2020). This argument is based on the fact that such extensive development projects encompass the acquisition of massive land for infrastructural development, leaving the project-affected populations exposed to ecological and social processes that intensify their vulnerability. Social problems, degradation of the environment and human rights

violations are among other vices brought about by the exploration, extraction, and transportation of energy and mineral resources. In particular, displacement of households is a common occurrence in many oil-mining regions across the world. Evidence shows that for millions of individuals and households in Africa, oil-related activities have cost them their land, health, lives, and livelihoods (Golder & Ecologics, 2020). Notably, the shock brought by the loss of crops, livestock, and lands, as well as delayed compensation in the oil extraction initiative, has increased the vulnerability of households' livelihoods.

Development-induced displacement has persisted as one of the most contentious subjects in development in the current times (Adeola, 2020; Terminski, 2013). As argued by Stepputat and Sørensen (2014), the inequitable distribution of benefits and costs amassing from development is nowhere more apparent than in the research into population displacement caused by infrastructural construction and mineral resource mining projects. In discussing the nature of development-induced displacement, Neef and Singer (2015) highlight that the experience of displacement does encompass not only physical loss but also the people's loss of agency and power over their lives, as well as increased risks of simultaneous loss of social, economic, and cultural resources.

Terminski (2011) notes besides environmental and social problems such as organized conflict; there is a high rate of uncontrolled displacement related to the exploration and extraction of crude oil. In making a critical analysis of oil-induced displacement, the author distinguishes three key concepts that describe the nature of the problem. Excision of land is the first element of oil-induced displacement, which occurs when populations are forced to flee their homelands due to the development of oil (Terminski, 2011). Vanclay (2017), on the other hand, argues that regardless of their drive and whether introduced by private or government companies, large-scale infrastructure or development projects typically necessitate land, often large pieces of land; a requirement that often results in the physical dislocation of the individuals residing there (Vanclay, 2017). According to Owen and Kemp (2015), the loss of land and lack of compensation by the indigenous populations leads to undesirable economic and social consequences such as unemployment, homelessness, as well as health risks.

In a study conducted in Uganda to examine the effects of oil on the livelihoods of populations residing in the Albertine region of Uganda, Ogwang (2020) reports that households who are forced to leave their homes following oil-mining activities pose critical risks to their livelihoods. One of their greatest challenges is the loss of land. According to Ogwang (2020), the loss of land results in economic and social marginalization as well as the loss of the economic base functioning of the entire community. In another exploration, Ogwang and Vanclay (2019) report that the mining, processing, and transportation of crude oil in Uganda needs massive infrastructure, which demands the acquisition of huge parcels of land from local communities near the mining sites. The findings of their study reveal that many households were displaced from their lands to pave the way for the oil industry infrastructure and mining activities, hence causing reduced access to livelihoods, and social services, increased food insecurity, and significant disintegration of cultural and social cohesion that existed among the community members. Ogwang and Vanclay (2019) further argue that oil development led to the displacement of populaces from their land, an asset which is key to their livelihoods, and therefore with no or restricted access to land, some households ended up in towns, ending up impoverished. More importantly, the excision of the people from their land has immense effects on peasant households that engage in grazing, agriculture, and fishing.

The second perspective of oil-induced displacement, as stated by Terminski (2011) and agreed in a range of other studies, is the environmentally-induced displacement of populations. Throughout the history of humankind, environmental motivations such as environmental changes have been significant catalysts for human relocation (de Oliveira et al., 2020). According to Terminski (2011), the extraction and transportation of crude oil cause uncontrolled environmental snags and have greater destruction on the environment as compared to urbanization, dams, and road projects. Environmental disasters can result from industrial accidents that occur during the extraction and transportation of oil, such as pipeline explosions, causing massive destruction of the

ecosystem and large-scale displacement of populaces (Terminski, 2011). In a study to examine oil-associated environmental degradation and population displacement in Nigeria, Onyemachi (2012) established that oil-related environmental hitches, including oil spills, gas flaring, and dredging of canals, resulted in chemical contamination, loss of fish, contamination of drinking water, lowered agricultural land productivity and increased risks of diseases. These environmental factors related to the exploitation of oil lead to the degradation of land and local ecosystems, thus forcing thousands of indigenous inhabitants in the Niger Delta to migrate to safer areas. For instance, most locations of the Niger Delta in Nigeria have been rendered unfit for humans to live in or for wildlife rehabilitation (Onyemachi, 2012).

In examining the costs of the largest oil spills in Niger Delta, Obida et al. (2021) report that environmental degradation caused by oil extraction and transportation has resulted in the internal displacement of populations in Nigeria's Niger Delta. According to the authors, the displacement of people due to environmental and land degradation is perceived as a definite social problem that diminishes the capacities of individuals, households, and groups in the society to pursue their interests that might or might not pertain to relocation. The findings from their study concluded that oil-related environmental disasters had diminished the productivity of the communities living in oil mining areas, leading to income and occupational losses that bring about both involuntary and voluntary migrations (Obida et al., 2021). It is evident, therefore, that the displacement of households in mining areas could be an outcome of both short-and long-term environmental disasters like oil spills.

The third concept is conflict-induced displacement, which according to Terminski (2011), is prevalent in African countries and has been caused by the control of crude oil deposits, as well as its extraction and transportation activities. In this paper, the extraction of raw materials has been pointed out as an element that consolidates religious and ethnic conflicts among communities that reside in mineral-rich areas. For instance, the Nubian community in Sudan experienced large-scale displacement due to oil extraction and transportation activities in the region. In this case, there were forced confrontations to take over the mining, processing, transportation, trade, and profits accrued from the oil resources. As noted by Terminski (2011), the desire to control the oil resources resulted in violence and conflict-related displacement of the Nubian population. Terminski's arguments imply that oil is a significant cause of conflicts in oil exploitation areas, which often result in the large-scale internal displacement of the indigenous people. In this case, displacement is perceived to occur when crude oil becomes a significant element in ethnic violence, conflict, and civil wars.

While the nature of displacement of households in oil-induced displacement is hardly a new phenomenon in Kenya, the numbers of those affected have increased dramatically since the discovery of crude oil and the number is expected to go up in the coming days (Obongo, 2018). Furthermore, it is evident that most studies on development-induced displacement have focused on the effects of the displacement, and few have highlighted the exact nature of these displacements and the extent to which households have been displaced in terms of access to key resources. This gap means that existing research into oil-induced displacement has accorded more consideration to those affected by the phenomenon than the processes that caused the displacements. Owing to these shortcomings in the extant literature, the need to examine and establish the nature of this displacement becomes urgent and significant both for policymaking and in addressing the issue. This study hence sought to address this pursuit by assessing the nature of displacement of households in Lokichar-Kochodin Basin, Turkana County, from a sociological perspective and focused attention on the social nature and dynamics of the displacement processes and the resulting social transformation among households in the area.

The study was guided by Anthony Giddens' "Structuration Theory" (Giddens, 1984). The basic tenets of this theory are the ideas of agency and structure. Giddens describes *the agency* as a reflection of the restricted – but factual – capacity of humans or social groups to make autonomous decisions and to impose them on the work, and henceforth, to modify the structures that shape or constraint individuals' freedoms and opportunities (Giddens, 1984).

Structure, on the other hand, has been outlined as patterns of behaviour, beliefs, and social relations. Giddens' primary premise in the structuration theory is that agency and structures are reciprocally constitutive and, therefore, require to be analyzed in conjunction. Through this premise, Giddens broke with the conventional binaries between 'determinism and voluntarism, necessity how and free will' (Giddens, 1984). Essentially, the interplay between agency and structure is a fundamental concept in Sociology, as it aids in situating individual deeds within their relevant social context. Overall, the structuration theory has bid to include propositions regarding how the organizational features of society enable or restrict people's abilities to effect alterations and how individuals' practices; as a result, help in challenging or reinforcing the prevailing social structures or relations.

In relation to the study of the oil-induced displacement of households, agency and structure are particularly relevant, as forced displacement reflects the interaction between personal-and-household characteristics and preferences, as well as their demographic, economic, and social characteristics. The study applies the premise of mutual linkage between structure and agency to examine their role in oil-induced displacement, especially as a useful theoretical framework for exploring the social processes associated with oil-induced displacement, as the ability of the displaced households to attain or face risks of reduced livelihood might be either constrained or fostered by structural factors such as economic resources, access to land, resettlement dynamics, and social networks in their origin and destination societies. In essence, Giddens' Structuration Theory served to create an understanding that what makes the agency of oil-displaced households distinctive are the specific structures they face, including, but not restricted to, the resettlement areas, the household's livelihood vulnerabilities, and the special social and economic status of displacement.

METHODOLOGY

A cross-sectional survey design that involves the collection of data once at a scheduled time was adopted by the study (Bryman, 2016; Babbie, 2016; Creswell, 2014). The study was carried out in Lokichar and Kochodin Basin, the epicentre of exploration, extraction, and processing of oil in Turkana County. The target population constituted all households within or around the oil exploration and extraction site in Lokichar and Kochodin Basin. According to available reports and the registers, there were 14,577 households in the Lokichar-Kochodin Basin, of which 8,397 were in the Lokichar location and 6,180 were in the Kochodin location. In this respect, in consultation with the chiefs, the study used registers maintained at the offices of the respective chiefs in Lokichar and Kochodin locations to identify and map out the entire households in the two locations. The total population in 2019 was 14,713 households, with 7,372 in Lokichar Location and 7341 in Lokori/Kochodin Location. A sample representation of the population was identified using Yamane's (1967) formula thus:

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

Accordingly, a sample size of 375 was required to achieve a representative sample that would also be accompanied by a less than 0.05 per cent error. In addition, a 10 per cent contingency was added to cater for non-response, which then adjusted the sample size to 426 households. In view of the determination and adjustment, a sample of 426 households was obtained, as depicted in Table 1 below.

Table 1. Proportional Distribution of the Determined Sample

Location	Sub-location	Households	Per cent	Sample Size
Lokichar	Lokichar	4424	30	128
	Kapisa	3973	27	115
	Sub-total	8397		243
Kochodin	Kochodin	3973	28	117
	Lokichar	2207	15	66
	Sub-Total	6180		183
	Total	**14577**	**100**	**426**

Key informants were selected using purposive sampling. The key informants were asked about their experience and knowledge of the developments in the Lokichar-Kochodin Basin. Focus group discussion (FGD) guides key informant interview (KII) guides, and questionnaires were used to collect data. Moreover, key stakeholders, in addition, discussions were held with key stakeholders that included community leaders, civil society organizations (CSOs), the local administration, and representatives of Tullow Oil (the oil mining company). Data analysis was further performed using the Statistical Package for Social Sciences (SPSS) Version 21 to generate both descriptive and inferential statistics and thematically for quantitative and qualitative data, respectively.

FINDINGS AND DISCUSSION

This study sought to assess the nature of the oil-induced displacement based on the hypothesis that households had experienced varied phases of impoverishment and displacement related to the exploration and extraction of crude oil. It will be noted that in this study, displacement has been used to refer to the phases of impoverishment-displacement that ranges from the risk (vulnerability) to disruption and dispossession to the displacement of the population by oil-related processes that have included disasters, environmental changes, conflicts, and development and extraction initiatives. Figure 1 below shows areas in South Lokichar Basin where oil-related activities are concentrated.

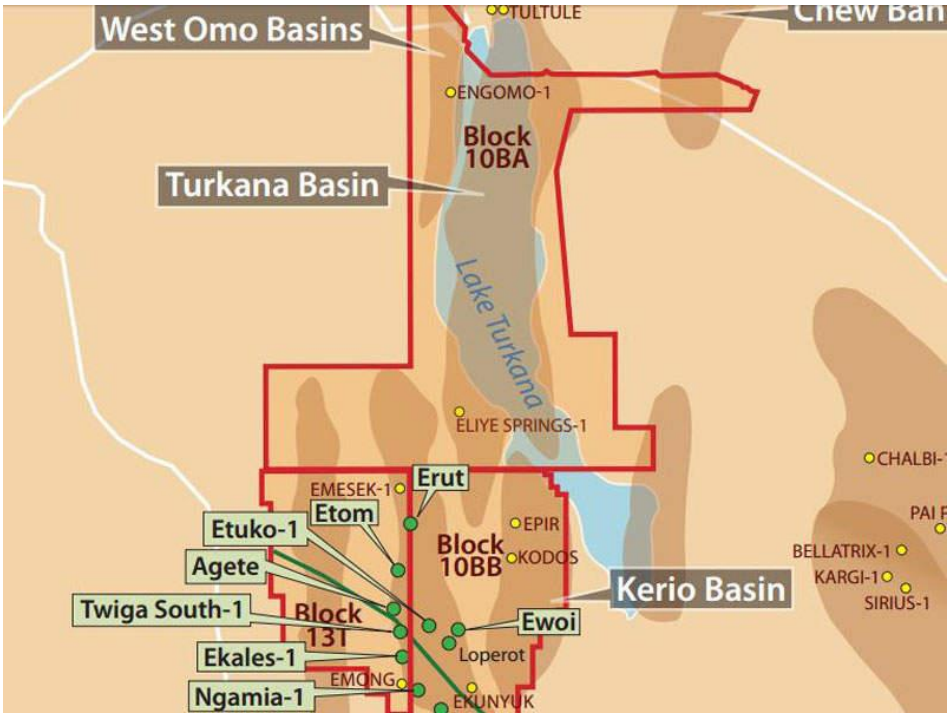

Figure 1. Notable Blocks of Oil Wells in the South Lokicar Basin
Source: CDH (2018)

Accordingly, the study derived seven (7) key indicators of the impoverishment and displacement vulnerability related to exploration, extraction, and processing of crude oil from the previous studies. These indicators include 1) excised (or depleted) inherited land, 2) increased contamination (degradation) of land –or environment, 3) reduced (depleted) access to water sources, 4) reduced access to pasture, 5) reduced livestock, 6) reduced (depleted) household inheritance and 7) reduced (depleted)family support. Similarly, the study assessed the level at which households had experienced each of these components and the rate of vulnerability as a result of the exploration and extraction of crude oil using a 1 to 4 scale of 1 to 4 to reflect various levels of impoverishment and displacement vulnerability. Indeed, such index and related approaches have been used in the studies of disasters, environmental variability, and displacement risks (Sujakhu et al., 2019; Amuzu-Sefordzi et al., 2018; Adu-Manu et al., 2018).

Excised/Abandoned Land

In order to understand the nature of oil-induced displacement, the study assessed the experience of the households on the excision of land on a scale of 1 to 4 and responses were summarised in Table 2.

Table 2. Experience of Excised, Reduced Land

		Frequency	Per cent
1	Limited risk to excised/reduced land	93	22
2	Minimal risk to excised/reduced land	107	25
3	Extensive excised/reduced land	118	28
4	Severe excised/reduced land (Displaced, relocated to new lands	105	25
	Sub-total	423	100
	Missing	3	
Total		**426**	

Key: 1=Limited risk of reduction, 2= Minimal risk, 3= Extensive reduction and 4=Displaced, relocated to the new land

Responses from Table 2 above indicate that 78 per cent of the households experienced varied levels of excised (surrendered) land in which 28 experienced extensive excised or reduced land and 25 per cent experienced severe excised or reduction of land. This finding reveals that households that resided within the vicinity of the areas identified for exploration and extraction of oil experienced loss and reduction of their land. One village elder in a focus group discussion reported that in a focus group discussion, "*… People were displaced from their land because of oil activities; sometimes forced by emissions and noise from oil activities.*"

A key informant (I4) noted that:

> *a total of 700 square kilometres of community land had been curved out to support the exploration of oil and gas, extraction, storage, and related infrastructure; as well as unspecified to support transportation.*

He further mentioned that:

> *The Initial land acquisition was carried-out in South Lokichar around Twiga, Amosing and Ngamia (TAN) fields to support construction and operation of facilities for extraction and transportation of oil. Of course, the households that were severely affected lived within the vicinity of the areas identified for exploration and extraction of oil.*

In a focus group discussion with the community's council of elders, an elder (P2) reported that:

> *Indeed, a number of authorities have acknowledged that from the onset of the exploration and subsequent extraction of oil and gas in South Lokichar Basin, pastoral communities lost the ownership, access, and control of land which had been the basis of their economic production and livelihoods for centuries.*

These findings reveal that although the process of land acquisition was not forceful but based on agreements and/or signed consents, the community generally experienced displacement due to the excision of land, which exacerbated their increased vulnerability to loss of their livelihoods. These findings concur with a study conducted in the Albertine Region of Uganda by Ogwang and Vanclay (2019), who reported that the mining, processing, and transportation of crude oil in Uganda needs massive infrastructure, which demands the acquisition of huge parcels of land from local communities in the mining sites. According to the researchers, many households were displaced from their lands to pave the way for the oil industry infrastructure and mining activities, hence causing reduced access to livelihoods, and social services, increased food insecurity, and significant disintegration of cultural and social cohesion that existed among the community members. Nevertheless, the findings of the study regarding the excision of land support past findings of a study by Wilson (2019), which revealed that mining-induced displacement led to the loss or reduction of land-based resources, which then saw an increase in sustained impoverishment of households in mining villages in Sierra Leone.

Cumulatively, these findings are consistent with the arguments by Alert (2015) and Owen and Kemp (2015), who highlight that displacement is an occurrence where an individual or a group of people are involuntarily deprived of their surroundings. Subsequently, they are deprived of their land, which is the key area of their social, cultural, and economic references, and in which, in most cases, they do not receive any compensation in return (Owen & Kemp, 2015). In conclusion, therefore, excised and/or reduced parcel of land remains one of the fundamental indicators of impoverishment-displacement vulnerability arising from many circumstances, including exploration and extraction of oil.

Land Contamination (Degradation)

The extractive industry has been associated with a wide range of substantial environmental challenges; including clearance of land and related degradation; use of volatile chemicals; acid drainage from oil sites; loss of biodiversity; intensive use of water; pollution from poorly disposed waste; and environmental variability including climate change (Addison & Roe, 2018; Jegede, 2016; Obiri, 2014). Although an essential driver of socio-economic development, extractive industry is also accompanied by acute environmental challenges that increase the dispossession (deprivation) of land and livelihoods to the local population. Based on this, the study assessed the experience of the households on environmental challenges and related dispossessions and the results were summarized in Table 3 below.

Table 3. Experience of Contamination (Degradation) of Land

	1= Limited risk, 2= Minimal risk, 3= Extensive experience and 4=Severe experience and displaced,	**Frequency**	**Per cent**
1	Limited contamination	152	36
2	Minimal contamination	113	27
3	Extensive contamination	92	22
4	Severe contaminated	65	15
	Sub-total	422	100.0
	Missing	4	
	Total	**426**	

From Table 3 above, 64 per cent of the households experienced varied levels of the degradation (contamination) of land, in 37 per cent experienced extensive to severely contaminated land. During the study, one of the household heads reported that:

…dumping or disposal sites were adjacent to our land and had poisonous substances including volatile chemicals, which compelled us to relocate the livestock and the entire household.

A Key informant (I1) indicated that:

> *A considerable number of households witnessed various land contamination from blasting to extraction and disposal of the wastes, as well as some unpleasant and/or poisonous chemicals. Consequently, they lost some of their livestock and access to land adjacent to the extraction sites as well as dumping sites.*

These findings concur with a study by Onyemachi (2012) that examined oil-associated environmental degradation and population displacement in the Niger Delta and established that oil-related environmental hitches, including oil spills, gas flaring, and dredging of canals, resulted in chemical contamination, loss of fish, contamination of drinking water, lowered agricultural land productivity and increased risks of diseases.

According to the author, these environmental factors related to the exploitation of oil lead to the degradation of land and local ecosystems, thus forcing thousands of indigenous inhabitants in the Niger Delta to migrate to safer areas. The author cites a case where most locations of the Niger Delta in Nigeria have been rendered unfit for humans to live in or for wildlife rehabilitation. The findings also agree with those of a study by Obida et al. (2021), who reported that environmental degradation caused by oil extraction and transportation has resulted in the internal displacement of populations in Nigeria's Niger Delta. According to the authors, the displacement of people due to environmental and/or land degradation is perceived as a definite social problem that diminishes the capacities of individuals, households, and groups in society to pursue their interests that might or might not pertain to relocation.

From a Sociological viewpoint, these findings imply that oil-induced displacement of households in mining areas could be an outcome of both short-and long-term environmental disasters like oil spills, which then lead to not only physical loss but also the people's loss of agency and power over their lives, and increased risks of simultaneous loss of social, economic, and cultural resources. From a Sociology of Displacement perspective, Terminski (2011), in his book *"Oil-induced displacement and resettlement: social problem and human rights issue,"* points out that the extraction and transportation of crude oil cause uncontrolled environmental snags and have greater destruction on the environment as compared to urbanization, dams, and roads projects.

The author further highlights that environmental disasters can result from industrial accidents that occur during extraction and transportation of oil, such as pipeline explosions, which have caused massive destruction of the ecosystem and large-scale displacement of populaces. In sum, it is evident that oil-induced displacement.

Reduced Access to Water Sources

Reduced access to water sources is also another aspect of displacement and impoverishment vulnerability arising from the extraction of crude oil in the Lokichar-Kochodin Basin in Turkana County. More specifically, the study assessed the experiences of the households on the availability of and possible reduction of access to water sources because of exploration and extraction of oil and how this catalyzed displacement. The findings are presented in Table 4 below.

Table 4. Reduced Access to Water Sources

1 limited risk of reduction; 2= Minimal risk, 3= Extensive reduction; and 4= Severe reduction and displaced	**Frequency**	**Per cent**
Limited risk of reduction	140	33
Minimal reduction of access to water sources	123	29
Extensive reduction of access to water sources	92	22
Severe reduction of access to water sources	68	16
Sub-total	423	100
Missing	3	
Total	**426**	

From Table 4 above, 62 per cent of the households reported limited or minimal risk to reduction of access to water sources, while 38 per cent of the households reported an extensive and severe reduction of access to water sources. This finding reveals that there was a significantly minimal reduction of access to water resources as an outcome of the oil-related activities in the region. This finding is backed up by the sentiments of a key informant (I6) who reported that *"…a network of boreholes had been drilled in South Lokichar Basin; several of which were dedicated to the local community as part of the compensation and co-existence."*

According to one of the women in the study (R30),

> *some of the boreholes provided useful water access services to the local community; and which had been appreciated. Indeed, a number of boreholes have been drilled and water points established to support public access.*

However, some of the members of the community revealed differing sentiments, as reported by R102, who noted that:

> *He changed and up to now even if it is drinking water, you cannot find it not even on the road. You can go for 100 km without finding water to drink. He can't even give us water. He said when I would find oil, I will build story buildings, school-going children will not have problems, I will build you hospitals, and other development will come. But when he got the oil, he turned into a snake up to date and now he is telling us that we need to relocate 50 km away from this place.*

As noted by one of the household heads:

> *excised lands for exploration and extraction of oil fell along some of the streams, springs and wells that supported livelihoods particularly during raining seasons and for some period after the raining seasons.*

The implication of these findings is that the provision of water by Tullow Oil only lasted for a short while because as soon as the oil extraction processes began at the identified wells, the places, including water sources, became inaccessible to the community members. This, therefore, forced the households in the mining areas to relocate to different places in search of water, which is a crucial resource for the pastoralist community. In essence, the oil mining activities in the region meant that the typical access to water in the region remained a challenge, with the local people being forced to address this through migratory practices. This finding supports those of a study conducted by Aboda (2018) in the Albertine Region, which revealed that households in the oil-mining regions faced a reduction of their livelihoods through reduced access to water, land for agriculture and livestock keeping, and fuel wood, thus making it hard for them to rebuild their livelihoods in resettlement areas. Additionally, the displaced communities in the study reported reduced access to food and water, thus suffering food crises and disease threats caused by contaminated water sources.

Reduced Grazing Resource (RGR)

The study evaluated the experience of the households on reduced (interrupted) access to pasture, and the results were presented in Table 5 below.

Table 5. Reduced Gracing Resources (Pasture)

	1= limited reduction; 2= Minimal risk, 3= Extensive reduction; and 4= Severe reduction of pasture	**Frequency**	**Per cent**
1	Limited reduction of pasture	137	33
2	Minimal reduction of pasture	88	20
3	Extensive reduction of pasture	128	31
4	Severe reduction of pasture	65	16
	Sub-total	418	100
	Missing	8	
	Total	**426**	

Reduced grazing resources (RGR) continue to be one of the key indicators of impoverishment-displacement vulnerability related to the extraction of crude oil, particularly in arid and semi-arid areas. The findings show that the majority (53%) of the households reported having experienced a limited and minimal reduction of pasture, with 33 per cent of the households experiencing limited reduction and 20 per cent reporting minimal reduction of pasture. However, 47% of the households reported an extensive and severe reduction of pasture. From the qualitative responses in the questionnaire, it was ascertained that these households are the ones whose parcels of land had been excised or curved out for exploration and extraction of oil. These households included those that had shifted voluntarily because of contaminated parcels of land and related environmental degradation.

Although the minimal to limited loss of pasture was reported, it is evident that the oil-related process in the study area resulted in the loss of grazing land. As reported by one of the respondents, who is a herder, *"pastoralism which is their main source of livelihood, was getting affected because the company had occupied their grazing land and watering points."* This implies that both excised land and environmental challenges from extractive industry reduce (or interrupt) access to the pasture by the local (indigenous) population. In essence, oil exploration has been found to have adverse effects on pastoralism.

This finding conforms to those of Obongo (2018), who carried out a study to examine the effects of oil activities on the livelihoods of the households in Turkana and established that the fast growth of settlements due to crude oil exploitation had negative effects on pastoralism, which is a primary household occupation in the area. According to the researcher, migration routes and riverine pasture became inaccessible to pastoralist households as they were within the oil drilling areas. The outcome of this is that livestock keepers were forced to trek long distances to access adequate pasture and grazing fields for their animals. It is also in line with findings by Ogwang and Vanclay (2019), which revealed that the displaced households faced a significant reduction in accessible land for grazing as most of their land was taken up for the construction of oil-related infrastructure. Although most of the displaced persons were compensated, the authors argue that it was difficult for the households to get adequate inexpensive alternatives for feeding their livestock.

Reduced Social Support

There is no doubt that social networks, relations and reciprocal support have been a crucial part of the customary practice and inheritance among various communities, including the Turkana Community, which play a fundamental role in addressing life vulnerabilities, particularly livelihood shocks. As part of examining the nature of displacement, the study assessed the experiences of the households on reduced (depleted or interrupted) family and/or social support as a result of oil development activities in the area, and the results were summarized in Table 6 below.

Table 6. Reduced (Depleted) Social Support

	1=Limited risk, 2= Minimal risk, 3= Extensive erosion and 4=Severe erosion, displaced, new land	Frequency	Per cent
1.	Limited (negligible) risk, reduction	157	37
2.	Minimal reduction of family support	126	30
3.	Extensive reduction of family support	84	20
4.	Severe reduction and displaced,	56	13
	Sub-total	423	100
	Missing	3	
	Total	**426**	

The findings above reveal that 37 per cent of the households experienced minimal (negligible) risk to family support due as a result of oil development in the area, and 20 per cent experienced substantial

(greater) risk to reduced (depleted) family support. Even more interesting, 33 per cent of the households reported that some of the family support was actually depleted (eroded) or family support was severely depleted, displaced, and relocated to new sites. This finding reveals that the reduction of household social support is one of the indicators of impoverishment-displacement vulnerability arising from the exploration and extraction of oil in the Lokichar-Kochodin Basin in Turkana. This finding brings new insights into the subject and tells us more about the social losses encountered by families due to oil-related processes that remain scanty in the extant literature. In essence, the finding reveals that the loss of social support networks and social capital as an important livelihood capital worsened the livelihoods of the affected populations through the loss of reciprocity within the community and resulting marginalization.

CONCLUSIONAND RECOMMENDATIONS

Conclusion: Regarding access to water resources, many households were affected by the lack of water for their domestic use hence unable to rebuild their livelihoods in resettlement areas. This, therefore, forced the households in the mining areas to relocate to different places in search of water, which is a crucial resource for the pastoralist community. In essence, the oil mining activities in the region meant that the typical access to water in the region remained a challenge, with the local people being forced to address this through migratory practices. On grazing resources, the study finds that the majority of the households reported having experienced a reduction in access to pasture as a result of the displacement due excision of land as well as land degradation. It was also established that the rapid increase of settlements around the oil mining areas had negative effects on pastoralism, which is a primary household occupation in the area. The outcome of this is that livestock keepers were forced to trek long distances to access adequate pasture and grazing fields for their animals.

Recommendations: The findings from the study reveal that oil-induced displacement, as a category or cause of development-induced displacement, is associated with adverse environmental, human-social, economic, and physical livelihood vulnerabilities for the affected populations. This study proves that oil-related activities cost native individuals and their households their land, health, and general livelihoods, which manifest through the shock brought by the loss of crops, livestock, and lands, as well as denied compensation, which subsequently increased the vulnerability of households' livelihoods. This study hence recommends that the Kenyan government should contemplate passing a law that necessitates oil or development companies to give the affected populaces a preceding payment of compensation before the acquisition and taking over of resources, including land and other resources.

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