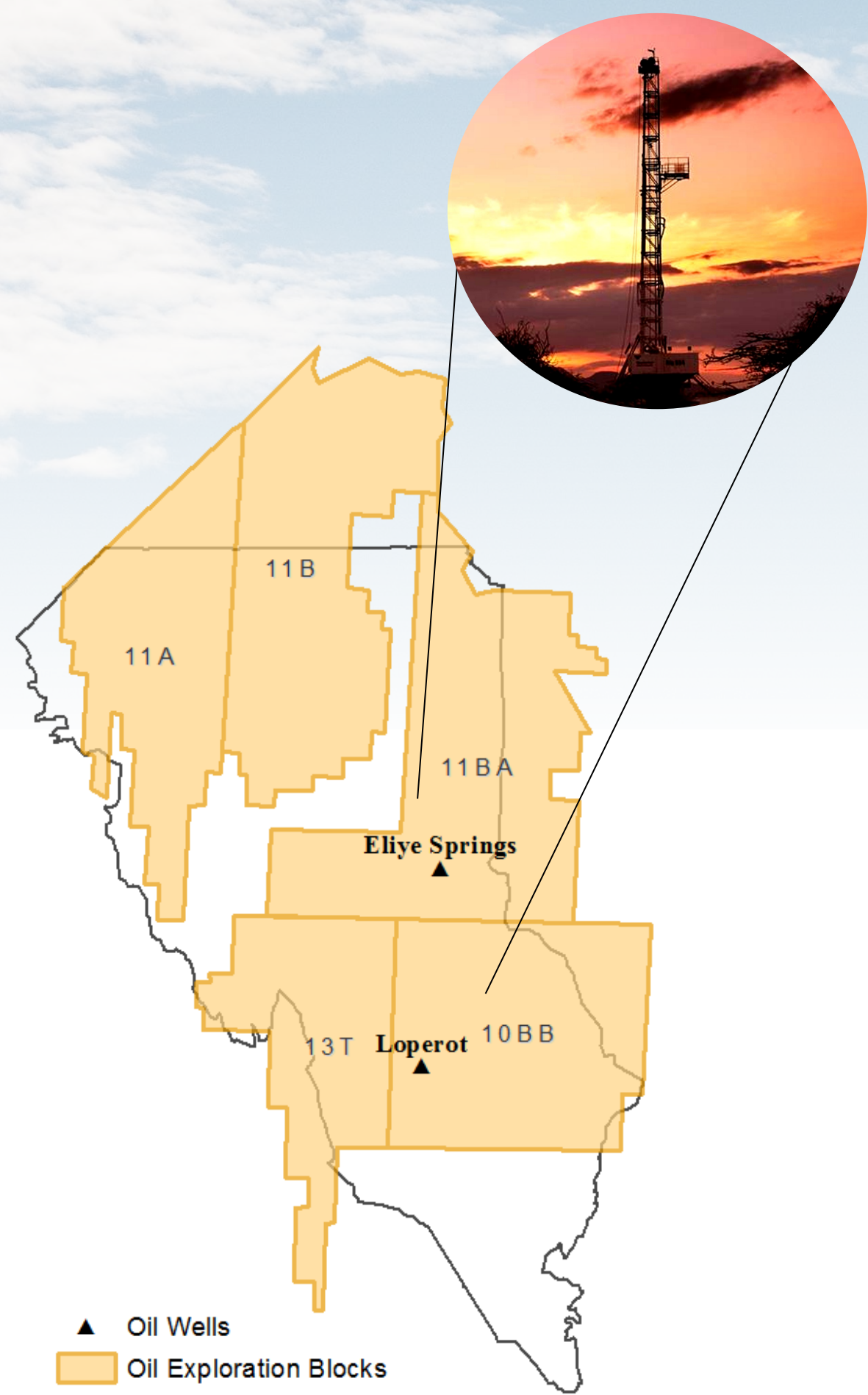


# Conflict Vulnerabilities & Oil Exploration in Turkana

## Introduction

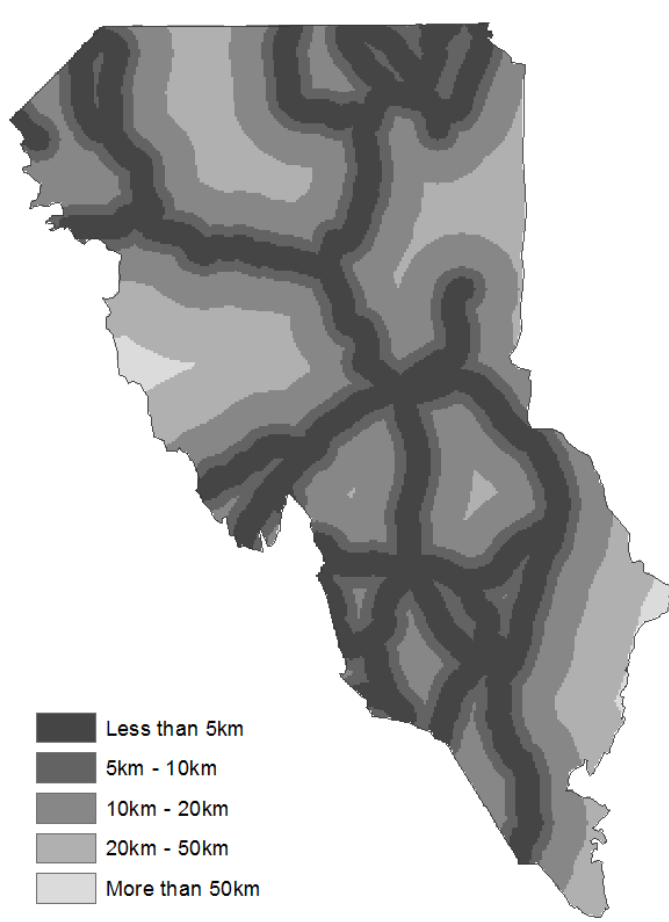
Following the discovery of oil in Kenya's Turkana county in March 2012, many are hopeful this represents an opportunity for the region's economic growth. Discovered by Tullow Oil, a multinational oil and gas company, in partnership with Africa Oil Corp, oil reservoirs in Turkana are estimated to be approximately 600 million barrels. The government of Kenya is expected to announce the country's first oil project in 2015 or 2016. Throughout Africa, however, oil exploration and production has led to several social,

cultural, economic, and environmental challenges for surrounding populations. To help governments, local communities, and the private sector mitigate the harmful effects of extraction and to support development, the impact of oil exploration on existing vulnerabilities must be better understood. This project seeks to assess the geospatial relationship between two oil wells and the underlying vulnerabilities in Turkana county to better understand the impact of oil exploration in the region.



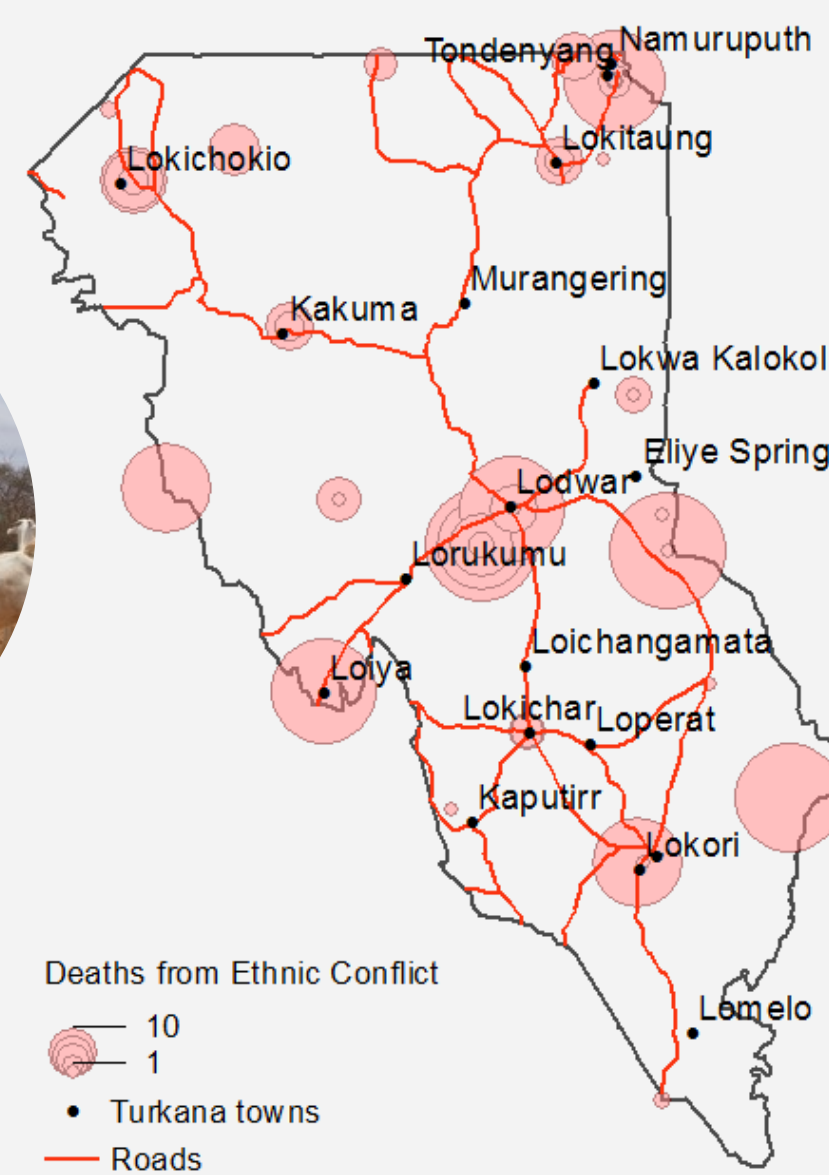
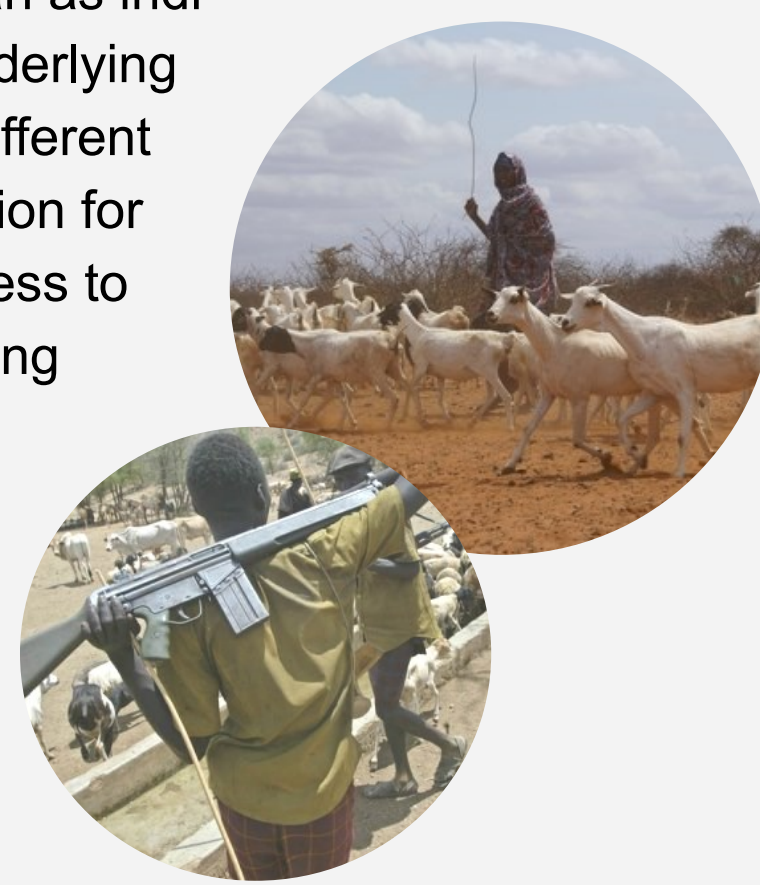
## ACCESS TO ROADS

Proximity to Turkana's roads is an indicator of access to transportation, market routes, and mobility. According to the World Bank, improving access to roads is also a key component of development.



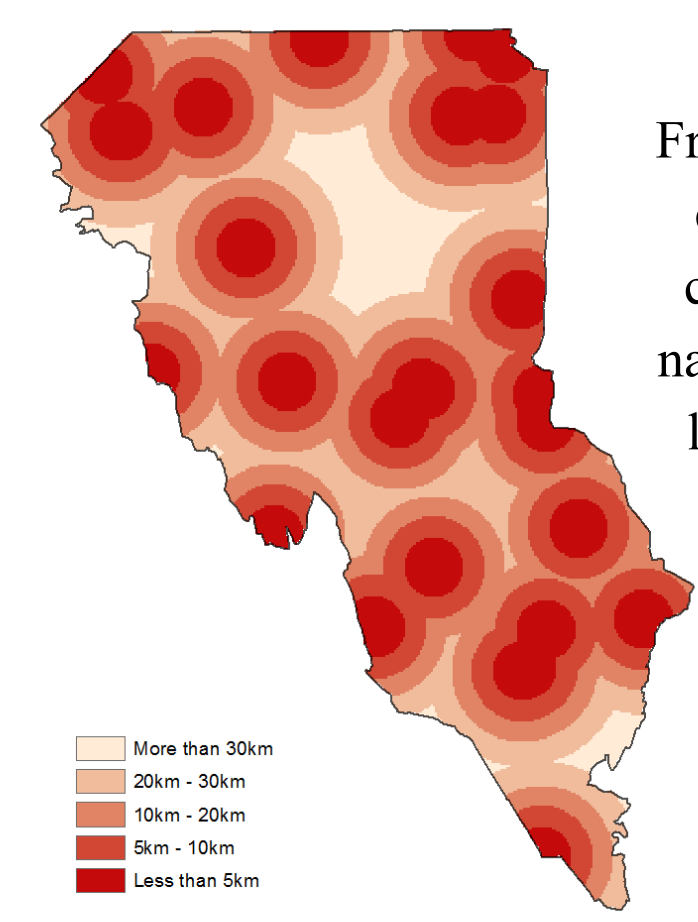
## DRIVERS OF CONFLICT

Although ethnic conflict is used as an indicator for vulnerability, several underlying factors drive violence between different pastoral ethnic groups. Competition for control of natural resources, access to limited resources (especially during drought), increasing levels of poverty, and the availability of arms all fuel conflict. One common form of violence and crime is cattle rustling, as livestock is both necessary for livelihoods and for dowries.



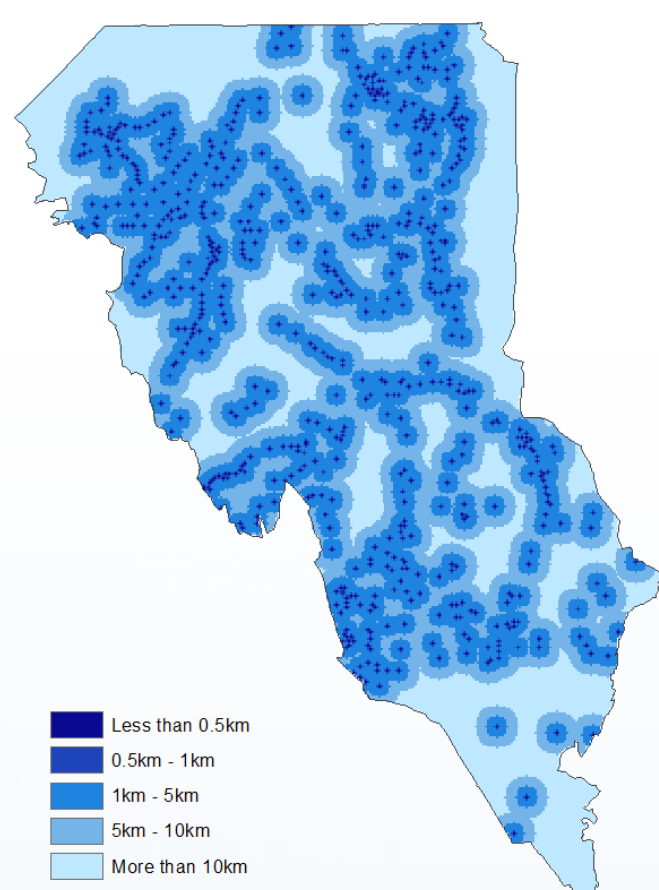
## ETHNIC CONFLICT

From 1997 to 2013, ethnic conflict and violence occurred throughout Turkana. Actors include not only Kenyan ethnic groups, but also raiders from neighboring countries. Vulnerability increases near locations of previous ethnic conflict.



## WATER SOURCES

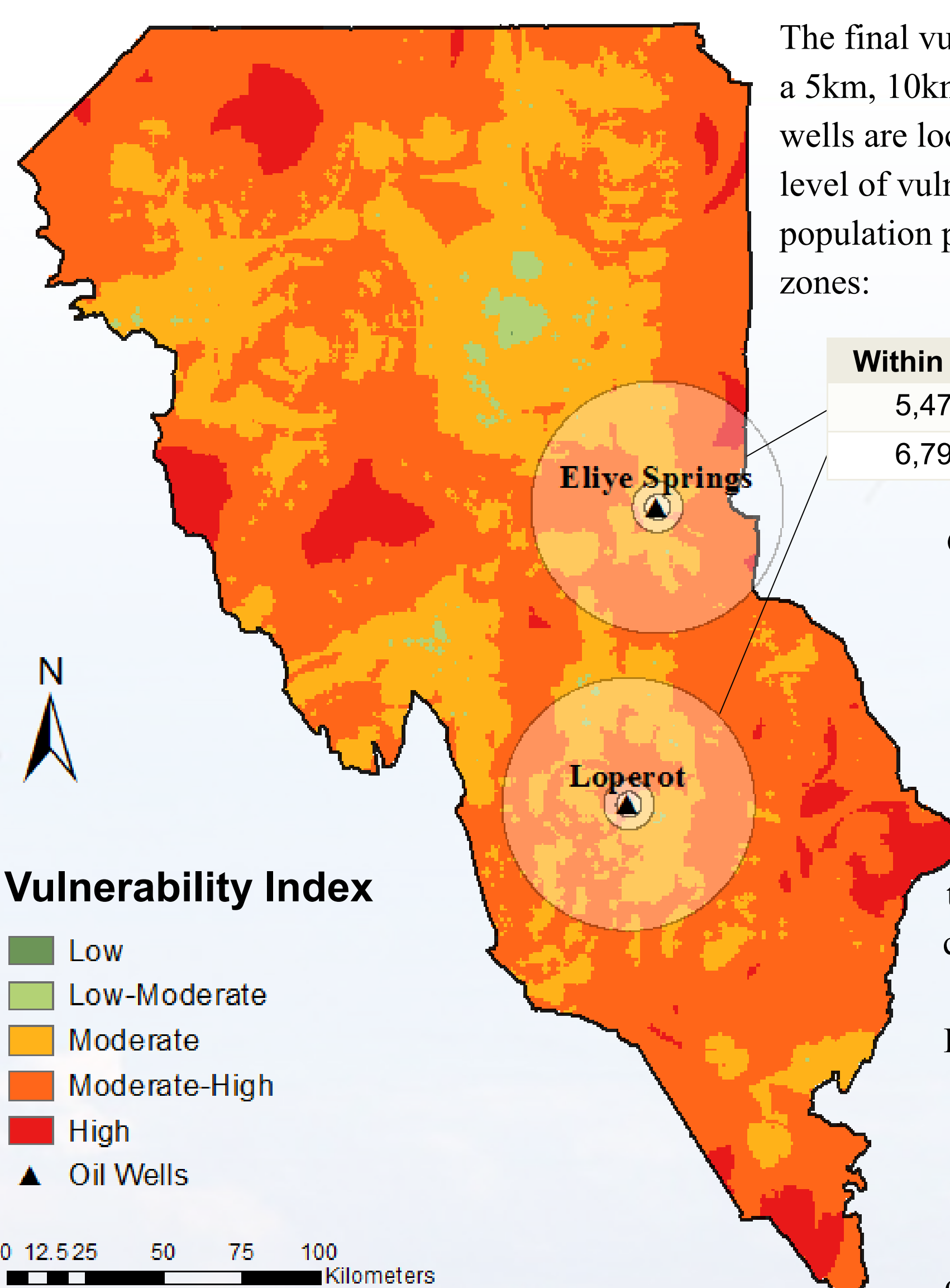
The ability to reach water sources is a key indicator of health and development. Because the region is also prone to droughts, proximity to water sources is essential for livelihoods and survival.



## Results & Limitations

The final vulnerability map indicates that within a 5km, 10km, and 50km buffer zone, two oil wells are located in areas of a moderate to high level of vulnerability. Below are estimates of the population potentially impacted within these zones:

	Within 5km	Within 10km	Within 50km
Elie Springs	5,473	29,006	132,284
Loperot	6,793	23,317	552,494

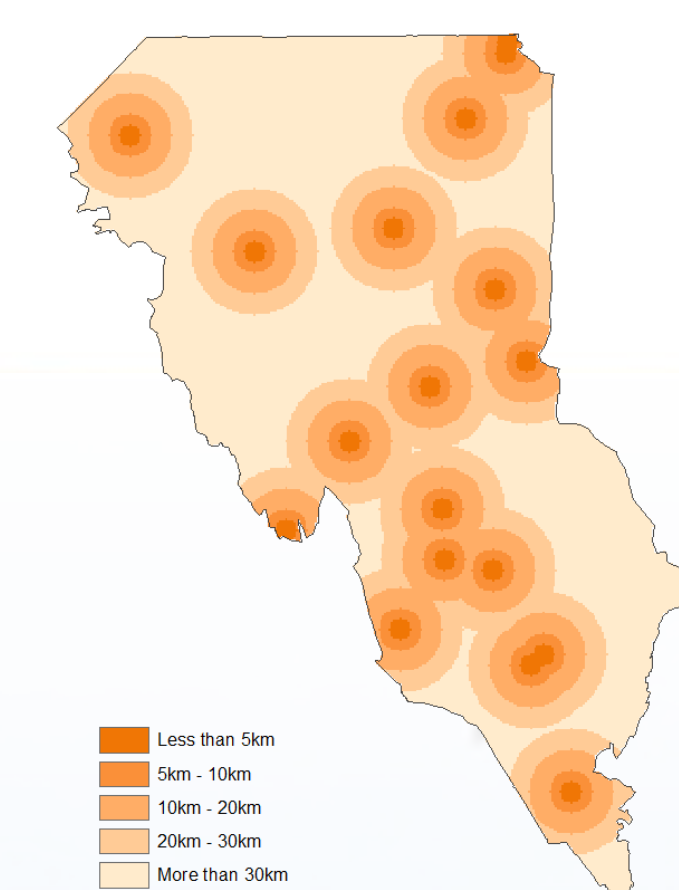


## Vulnerability Index

- Low
- Low-Moderate
- Moderate
- Moderate-High
- High
- ▲ Oil Wells

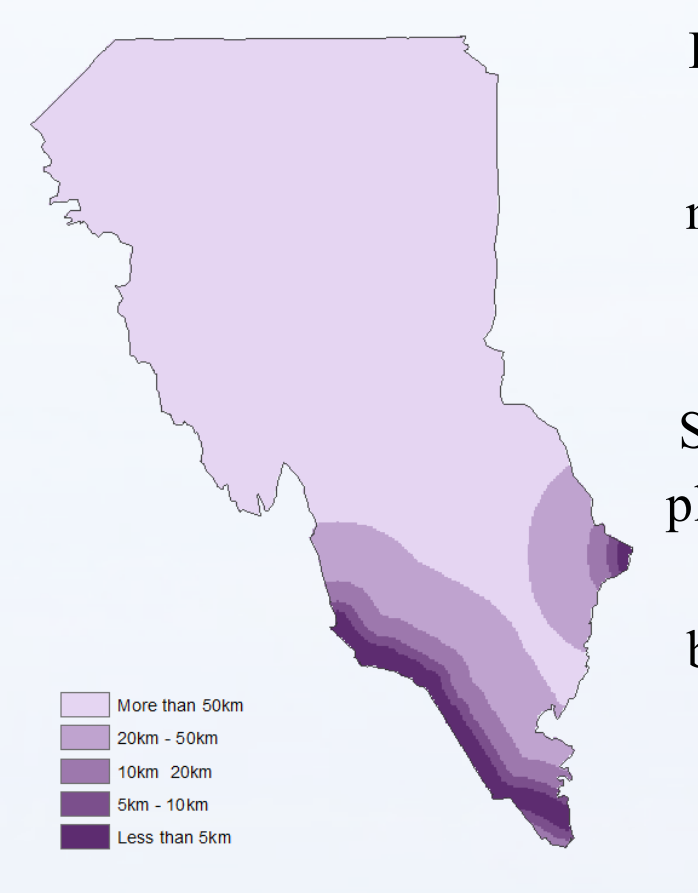
## TOWN CENTERS

Proximity to town centers is used as an indicator of access to markets, health services, education, law enforcement, and other government services in Turkana. Vulnerability increases as distance from town centers increase.



## ETHNIC BORDERS

These borders approximate the location of major ethnic groups, with Pokot peoples to the South and Samburu peoples to the East. Assuming proximity to ethnic boundaries raises risk of violence, vulnerability decreases as distance from borders increase.



## Methodology

To develop a vulnerability index, five indicators were used to measure the population's level of development and security: proximity to roads, water sources, areas of previous conflict, towns, and ethnic borders. Indicators were then converted into a series of raster surfaces, and with Euclidean distance tool, transformed into a raster grids. These were then reclassified using a score of 1 to 5, with 1 being the least vulnerable and 5 being the most vulnerable. Using the raster calculator, a final vulnerability map was created. Based on research done on Turkana, a heavier weight was given to proximity to water sources and sites of ethnic conflict. Lastly, the vulnerability map was reclassified to a 1 to 5 scale, with 5 being the highest level of vulnerability.

Given the potential impact of oil exploration, firms should be aware of their effects on local populations, their development, and the underlying drivers of conflict in the region.

There were various limitations to this geospatial analysis. Foremost, the analysis was limited to five indicators, which only estimate the actual level of vulnerability in the area. Due to the data available, this analysis was also unable to disaggregate which segments of the population would be most affected. The disproportionate impact of oil exploration on one ethnic group could have serious implications for the ongoing ethnic conflict in the region.