

Fossil Fuel Threat Mapping

A Geospatial Analysis of Fossil Fuels Across Kenya



POWER SHIFT
AFRICA



This brief provides a geo-spatial overview of how fossil fuel exploration intersects with Kenya's most precious resources: its fresh water, fisheries, protected natural sites, food, and critically, its people. By mapping the intersection of the fossil fuel system with other important social, cultural and ecological factors, it can help identify the nature and scale of potential threats and impacts. The analysis here shows that Kenya cannot rest on its laurels as a renewable energy leader while it opens the door to the potential impacts of fossil fuel exploration across more than half the country.¹

Introduction

Kenya is well recognised as a renewable energy leader in Africa. Kenya boasts an average of between 70-90% renewable energy power generation, primarily through plentiful geothermal and hydroelectric production. Excitement in Kenya's leadership on renewable energy was bolstered when President Ruto promised to achieve full 100% renewable energy for the country during his first major address after being sworn in.² Hopes in Kenyan leadership were raised further still when Kenya announced it would be hosting the inaugural Africa Climate Summit (ACS), as this year's chair of the Committee of African Heads of State and Government on Climate Change (CAHOSCC), promising to deliver on climate for the continent.

However, what Kenya's reputation as a renewable energy leader obfuscates is the true scale of fossil fuel risks that the country faces. Despite its impressive renewable energy numbers, over half of Kenya's entire land mass is available for potential fossil fuel exploration licensing, and over a third of the country is already licensed out for fossil fuel exploration. This exploration is leading to a growing number of proposed new fossil fuel projects, such as the Lokichar-Lamu Crude Oil Pipeline (LLCOP) and Mombasa LNG Import Terminal.

The analysis below illustrates the scale of fossil fuel exploration in Kenya, as well as the associated risks arising to freshwater resources and fisheries, to people living in proximity to fossil fuel development and infrastructure, to protected areas of ecological significance, to marine ecosystems and biodiversity, and to agricultural land and the communities dependent on them. It demonstrates the potential of geo-spatial analysis to provide policy-relevant information, and to support informed policy-making and advocacy as Kenya and Africa seek a rapid and just energy transition away from fossil fuels towards people-centered renewable energy and genuine sustainable development.

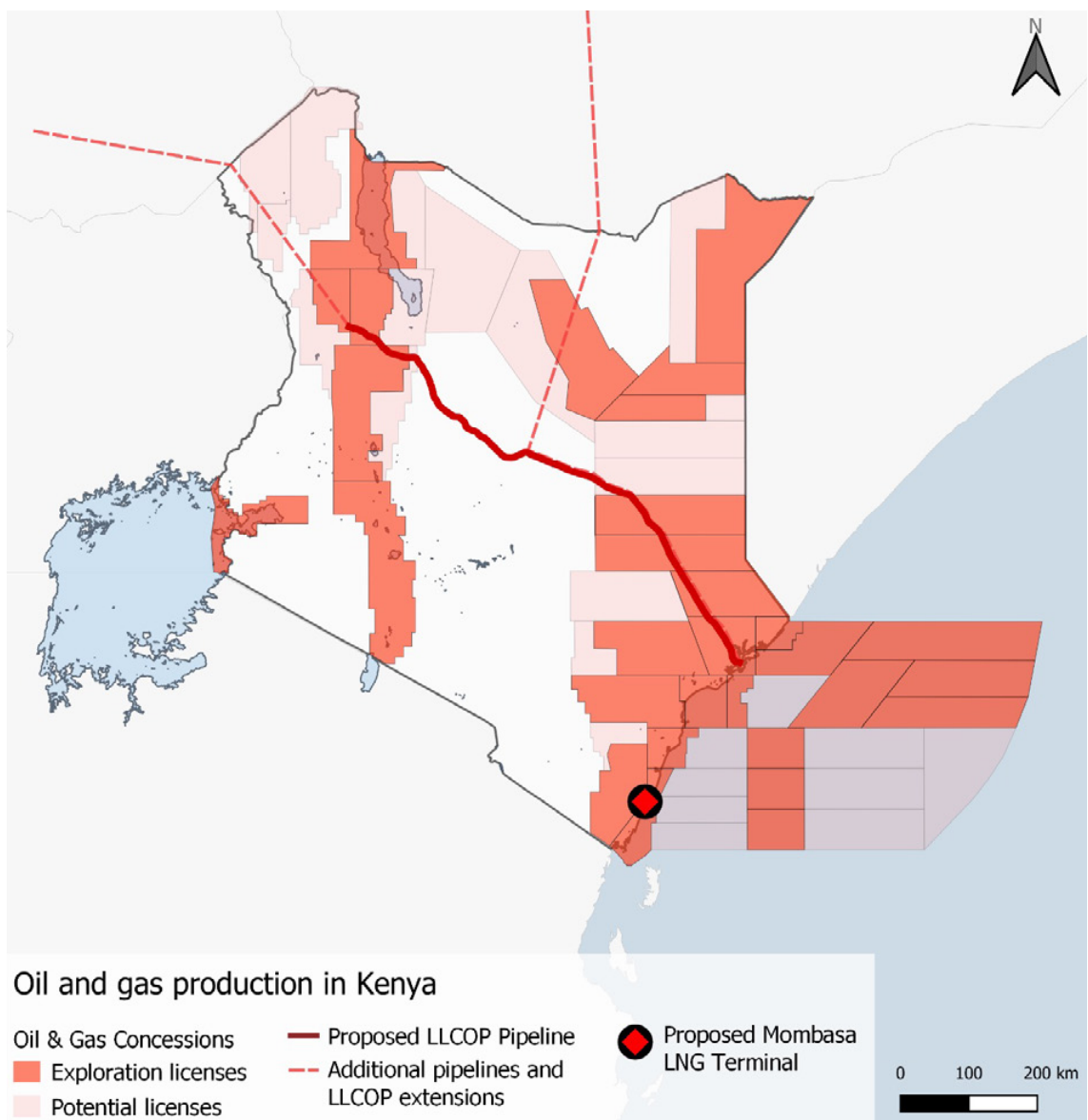
¹ The maps included in this document have been produced with the Fossil Fuel Atlas 2023: Global Energy Monitor, Institute for Governance & Sustainable Development, and Stockholm Environment Institute. Available online at: www.fossilfuelatlas.org

² <https://cleantechnica.com/2022/09/13/president-william-ruto-sworn-in-reaffirms-kenyas-commitment-to-transition-to-100-clean-energy-by-2030/>

Fossil Fuel Production in Kenya

Up to 57.9% of Kenya's land area is available for potential licensing for fossil fuel production (191,740 square Km, 33% of Kenya's land area, has already been licensed)

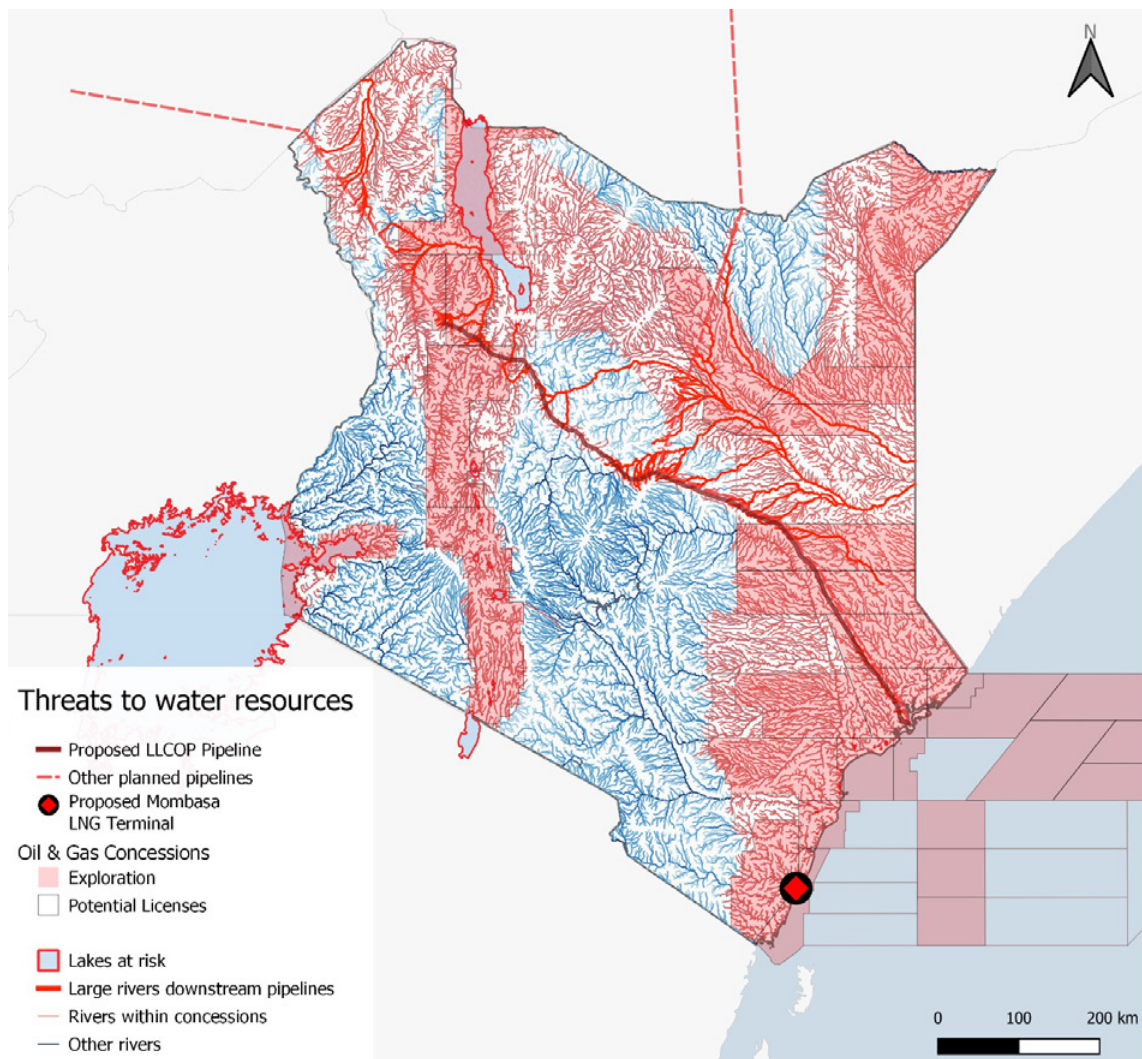
- » 191,740 square Km has already been licensed for exploration inland.
- » 336,274 sq Km of possible blocks in total. Kenya's land area is 580,370 km – the area of potential inland licenses is over 57.9% of Kenya.
- » The Lokichar-Lamu Crude Oil Pipeline (LLCOP) already has an environmental impact assessment (EIA). Other pipelines and an extension of the LLCOP pipeline are under consideration.
- » Mombasa LNG Import Terminal is under consideration too which could drastically increase fossil gas use.



Threats to Freshwater Resources & Fisheries

Water resource degradation caused by fossil fuel exploration and planned pipelines could impact millions of people and countless fisheries.

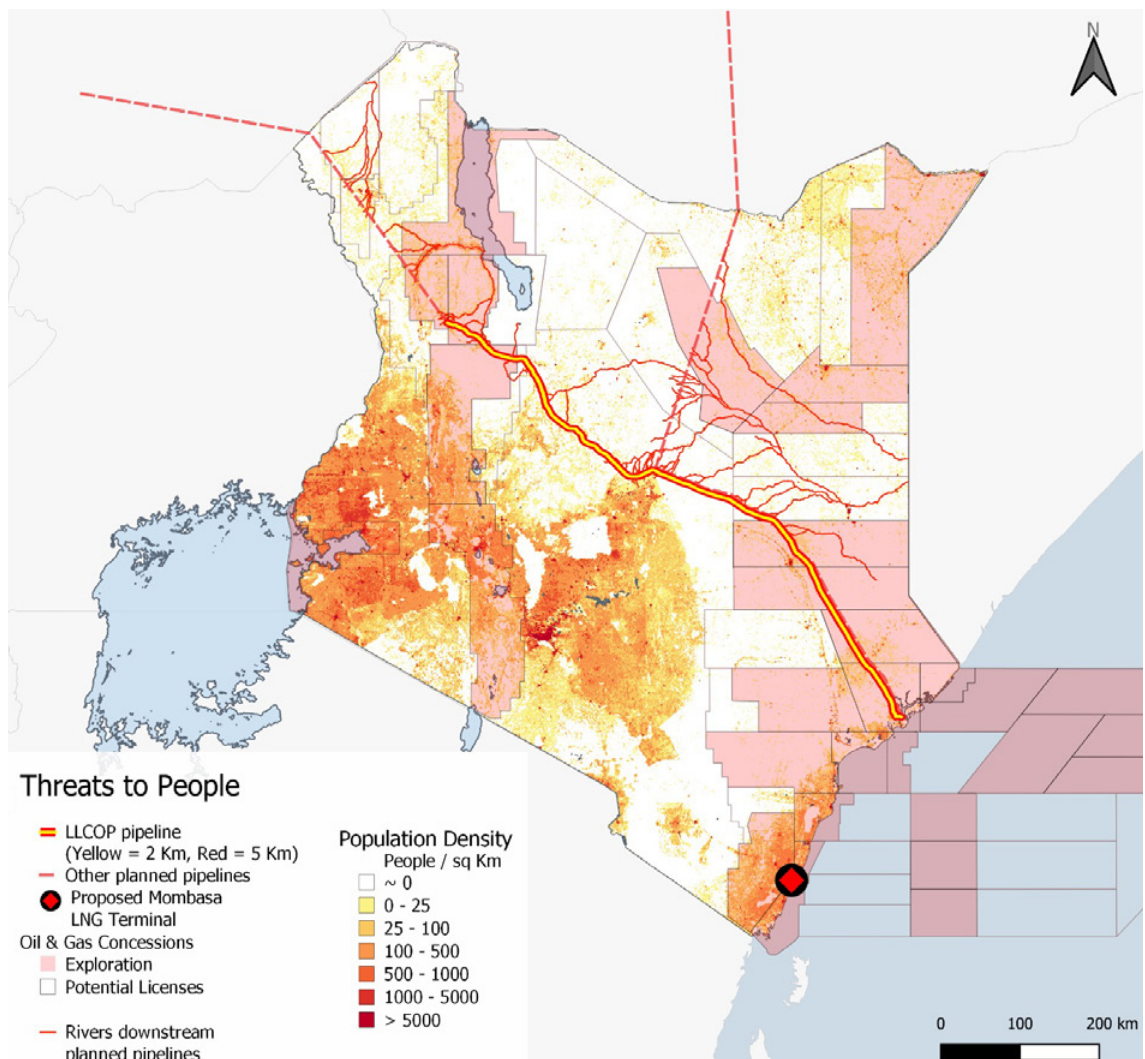
- » More than half of Kenya's water bodies intersect current or potential fossil fuel activity.
- » Kenya's largest freshwater lakes, including Lake Victoria, Lake Turkana, Lake Naivasha and Lake Baringo overlap with fossil fuel activity. Fisheries in Kenya's lakes are generally very productive, and would likely be adversely impacted by fossil fuel projects.
- » Within Kenya, there are 509,267 people living within 1km of Lake Victoria's shoreline. Many of these people's lifestyles depend on the lake, the entire Kenyan area of which is licensed for fossil fuel exploration.
- » Not including Lake Victoria, there are 84,575 people living within 1km of lakes at risk from fossil fuel activity. These lakes are freshwater sources for many people – for example, the over 22,000 Kenyans living close to Lake Turkana.
- » 460,000 people live within 1km of rivers downstream of planned pipelines (759,187 within 2km). These rivers serve as freshwater sources and fisheries for countless individuals.



Threats to People

Over 11 million Kenyans live in areas already licensed for fossil fuel production, and over 500,000 more live downstream of planned oil pipelines.

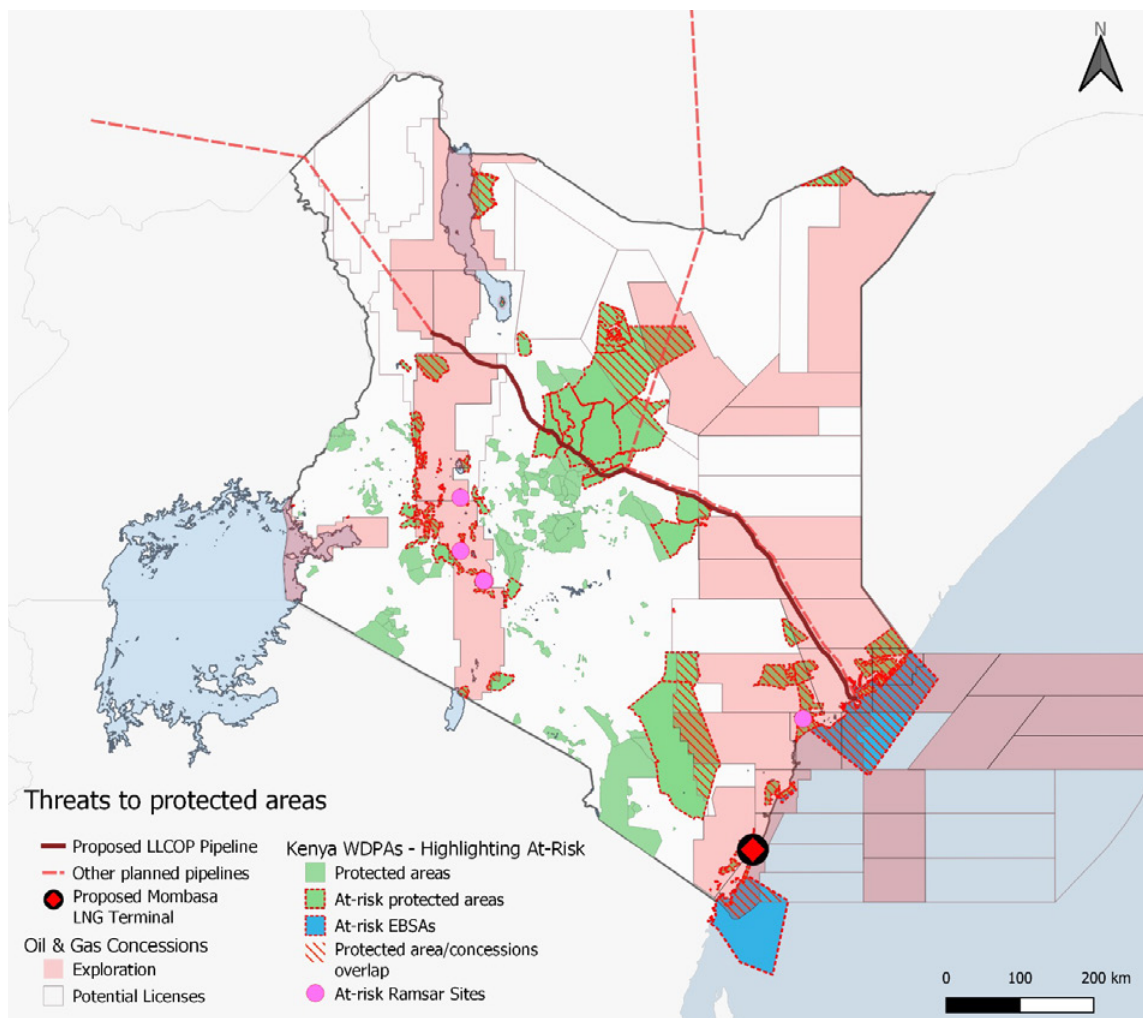
- » 11,841,769 people within blocks licensed for exploration (additional 2,000,549 in potentially licensed areas).
- » 23,716 people within 1 km of LLCOP pipeline route (57,595 people within 2 km, 151,220 people within 5 km).
- » 460,000 people within 1km of rivers downstream planned pipelines (759,187 within 2km). These rivers serve as freshwater sources and fisheries for countless individuals.



Threats to Protected Areas

Over 18,000 square kilometers of protected areas are within currently licensed blocks, including many community nature reserves, Ramsar sites, and marine protected areas.

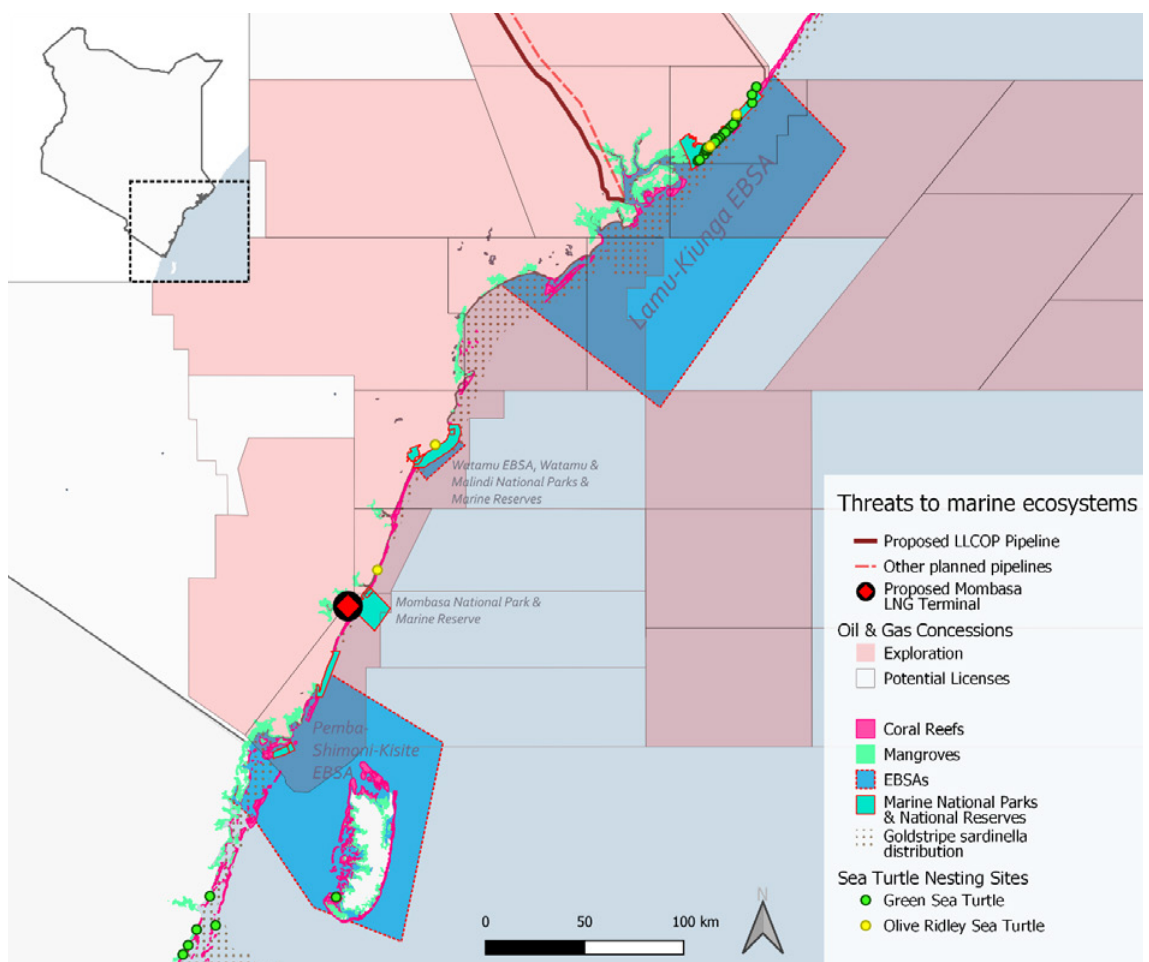
- » 32,691 sq Km of protected areas sit within licensed or potentially licensed blocks (18,667 sq Km already within exploration areas).
- » 122 protected areas sit within current & potential concessions or near proposed pipelines.
- » The LLCOP pipeline would cross through over 136 km of legally protected community nature reserves (5 reserves total) & national reserves (1 or 2). Many other protected areas would be at risk from river spills.
- » Four wetlands of 'international important' (Ramsar sites) sit within fossil fuel exploration areas too: Tana River Delta Ramsar Site, Lake Elmenteita, Lake Naivasha, and Lake Nakuru.



Threats to Marine Ecosystems & Biodiversity

All of Kenya's Marine Protected Areas, Ecologically & Biologically Significant Marine Area (EBSAs), and major coastal fisheries are within areas currently licensed for fossil fuel exploration.

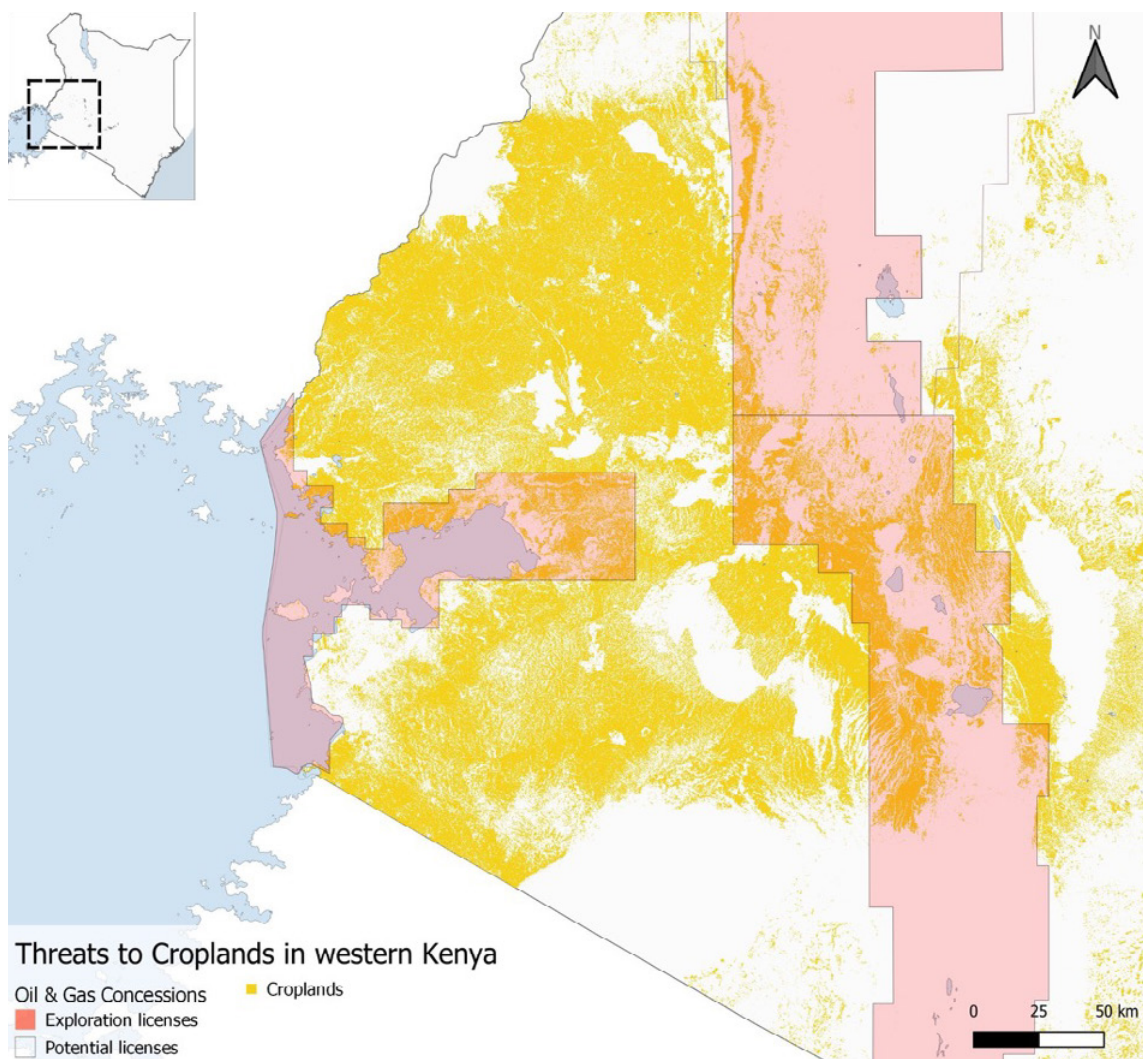
- » Goldfin salmon is commonly fished in Kenya's local fisheries, and its entire species range in Kenya lies within fossil fuel exploration areas.
- » Kenya's entire shoreline is leased for fossil fuel exploration. Furthermore:
 - ▶ All of Kenya's Marine National Parks, National Marine Reserves, and Ecologically & Biologically Significant Marine Area (EBSAs) lie within exploration areas.
 - ▶ All of Kenya's EBSAs overlap substantially with fossil fuel exploration concessions.
- » Most of Kenya's coral reefs and mangroves are within fossil fuel exploration concessions. Mangrove ecosystems protect against sea level rise, flooding, and serve as highly productive fisheries for many people.
- » Sea turtle hatchlings, especially along the northern shoreline, could be negatively impacted by fossil fuel exploration.
- » The LLCOP pipeline would terminate directly within the Lamu-Kiunga EBSA, among mangroves, coral reefs, and not far from Kenya's largest turtle hatchling area



Threats to Agricultural Lands

Local and large-scale agricultural lands in western Kenya are at risk from fossil fuel exploration.

- » Agriculture is the backbone of Kenya's economy, providing around a third of GDP, employing over 40% of the total population, and over 70% of the rural population.
- » Agricultural production also accounts for around 65% of the export earnings, and provides livelihood (employment, income and food security needs) for more than 80 per cent of the Kenyan population.
- » Intersections between fossil fuel exploration and croplands are extensive in both Eastern and Western Kenya, with potential impacts on farmers, pastoralists and rural communities.
- » Competition over land-use is pushing some farmers into dry marginal areas increasing vulnerability to drought, extreme weather and climate change



Conclusion

As Africa looks to navigate its development crossroads, it is not enough to merely embrace and advocate for renewable energy if we at the same time open the door to fossil fuels. What this brief makes clear is that when we open that door, we open our rivers, our lakes, our fisheries, our wetlands, our national parks, our endangered species, our airways, our forests, our indigenous lands, our food stocks, our communities. Fossil fuels may not be a major share of Kenya's current power generation, but they remain a major threat to all of its most precious resources and systems. As Kenya looks to plan its energy future and considers potential approvals for further fossil fuel exploration, production, and construction of new projects, it is crucial that the true scale of what is threatened by those fossil fuels is accounted for, and made plain to see for all.

