

ENERGY COUNTRY REVIEW

Kenya

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Country Review Kenya

MoEP

The Ministry of Energy and Petroleum (MoEP) is in charge of policies to create an enabling environment for efficient operation and growth of the sector.

The Ministry has five Directorates namely, Petroleum Energy, Geo-Exploration, Renewable Energy, Electrical Power, and General Administration and Support Services to facilitate delivery of its mandate.

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Kenya lies on the equator with the Indian Ocean to the south-east. It has a land area of 580,000 km² and a population of 43 million people.

In a landmark event for the country, President Mwai Kibaki announced on the 26 March 2012 that Tullow, in partnership with Africa Oil, had struck oil in the Turkana District. Establishing the commercial viability of the discovery is ongoing.

Hydrocarbon Profile

Kenya can be simplified into four large sedimentary basins, namely Lamu, Anza, Mandera and the Tertiary Rift basins which have both onshore and offshore areas. These are under-explored. Only 28 hydrocarbon exploration wells have been drilled in Kenya, averaging one well every 20,000 sq. km., and of these only one has been drilled since 1992. As recently as 2005 the country had just six licensed blocks with two active operating companies and was largely off the hydrocarbon exploration map. Over the last six years there has been a significant acceleration of interest in the country with over 12 oil exploration companies now operating in the country.

The first major oil discovery in Kenya, the Ngamia-1 well, was made by Tullow Oil and Africa Oil in March 2012. The Ngamia-1 well opened up a new oil basin in Kenya which has the potential to be one of the largest in the world.

The area has been named an emerging hydrocarbon province with the spectacular recent oil and gas

Country Facts

Official name:	Republic of Kenya
Independence from UK:	12 Dec. 1963
Republic declared:	12 Dec. 1964
Capital & largest city:	Nairob
Type of Government:	Presidential Republic
Area:	580,367 sq. km (224,080 sq miles)
Population:	47,746,146 (2016)
Languages:	Swahili, English
Religions:	Christianity, indigenous beliefs
Currency:	Kenyan shilling (KES)
Calling code:	+254

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Government

Kenya is a presidential representative democratic republic. The President is both the head of state and head of government, and of a multi-party system. Legislative power is vested in the government and a bicameral Parliament which consists of a 349-member National Assembly (Bunge) elected for 5-year terms, and a 67-member Senate mostly elected from counties.

The Ministry of Energy and Petroleum (MoEP) oversees the strategic direction of the oil and gas industry. The National Oil Corporation of Kenya, incorporated in 1981, is an integrated state-owned Corporation involved all aspects of oil and gas including operates its own exploration acreage.

Source: GlobalShift

discoveries announced such as Anadarko's first East African well, Windjammer- 1 (Oligocene fan with a 365 m gas column) in the east of Mozambique and Sino Union Energy Investment Group's 2009 SKL-2 oil discovery (estimated resources of 2 billion barrels) in Block 3113 onshore Madagascar. These developments, amongst others, have excited and drawn the attention of the industry.

Source: Taipan Resources

Geothermal development and power generation

Kenya faces a bottleneck to its economic development due to power-supply shortage and high electric prices. Geothermal resources, which are abundant in the country, therefore become a preferred solution. In 2006, CNPC Greatwall Drilling Company (GWDC) won the bidding for a high-temperature geothermal well drilling project for power generation, which is China's first such project overseas. Over the past few years, GWDC has achieved a 100% success rate of geothermal well drilling in Kenya. In particular, one of the wells with a depth of 3000m records the highest yield in Africa.

Oil and Gas Exploration History in Kenya

Petroleum Exploration in Kenya begun in the 1950's with the first well being drilled in 1960. British Petroleum (BP) and Shell began exploring in Kenya in 1954 in the Lamu Embayment where they drilled ten wells. None of the wells were fully evaluated or completed for production despite several indications of oil staining and untested zones with gas shows.

In Mandera Basin, Frobisher Ltd., Adobe Oil Company and Burmah Oil Company conducted photo geological field geology, gravity, aeromagnetic and seismic surveys that did not materialize into drilling programs.

In 1975, several consortia acquired acreage in upper part of Lamu Basin. Texas Pacific et al drilled Hargaso-1 in 1975 and encountered oil and gas shows in the Cretaceous rocks. In 1976 Chevron and Esso drilled Anza-1 and Bahati-1 wells in the southern part of Anza Basin. The drilling mud of both tests was suspected of having hydrocarbons and microfossils that contaminated the geochemical and cuttings respectively.

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An interest in the offshore portion of the Lamu Basin resulted in the drilling of three deep wells, Simba-1, Maridadi-1 and Kofia-1 by a consortium of Cities Services, Marathon and Union in 1982. Seismic data revealed that salt diapiric structures were present along the Kenyan margin.

In 1986, the petroleum exploration and production legislation in Kenya was revised to provide suitable incentives and flexibility to attract international exploration interest in the country.

In 1986 the Government of Kenya entered into a joint venture exploration programme with Petro-Canada International Assistance Corporation. Seismic work was conducted and Kencan-1 was drilled to test deeper strata on the structure adjacent to Garissa-1 well.

A group of companies led by Amoco and Total drilled ten wells, 8 of them in Anza Basin and 2 in Mandera Basin between 1985 and 1990. The wells were dry but with indications of oil and gas. Total exploration drilled Ndovu-1, Duma-1 and Kaisut-1 in North Anza Basin while Amoco drilled Sirius-1, Bellatrix-1 and Chalbi-3 in the Northwest of Anza Basin and Hothori-1 well in South Anza Basin.

Amoco farmed out 50% of its interest to Shell who drilled Eliye Springs-1 and Loperot-1 located west of Lake Turkana in a Tertiary Rift Basin. The Loperot-1 well penetrated a lacustrine source rock with high Total Organic Carbon content (TOC) and recovered water and waxy oil on a repeat formation test (RFT) from Miocene sandstone interval.

While none of these wells encountered commercial reserves, fluorescence and gas shows were reported in Hothori, Endela, and Ndovu wells. Biostratigraphic studies suggest that these wells may not have penetrated deep to test the Neocomian-Lower Albian sediments which comprise the source reservoir, and seal within Sudan rift basins.

In 1991, National Oil initiated an in-house study of the Lamu Basin as part of a long-term strategy to re-evaluate the existing geological, geophysical and geochemical data relating to each of the sedimentary basins in Kenya. The Lamu Basin study was completed in 1995. Based on the above reports Kenya subdivided the Lamu embayment (both onshore and offshore) into ten (10) exploration

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blocks, each with a specific exploration play. Two (2) more exploration blocks have been created since the year 2001.

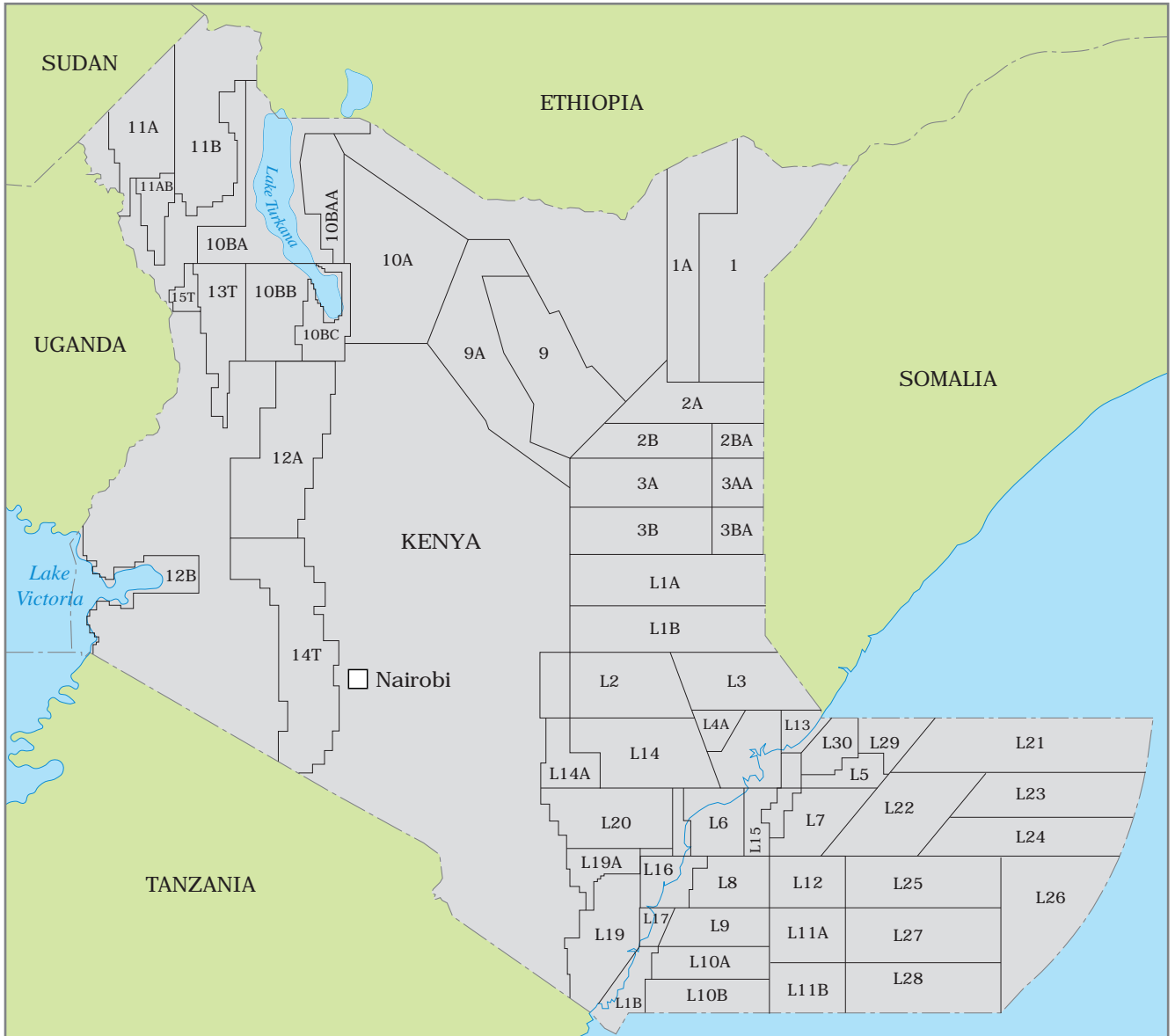
Promotion efforts generated new interests in the offshore Lamu Basin, and resulted in the signing of seven (7) Production Sharing Contracts covering blocks L5, L6, L7, L8, L9, L10 & L11 between 2000 and 2002. A total of 7884 km of 2D seismic data covering Blocks L5, L6, L7, L8, L9, L10, L11 & L12 was acquired offshore Lamu Basin by Woodside between August and October 2003.

In August 2000 the Corporation commissioned the Tertiary Rift Study, which was completed in March 2001. Tertiary rift study led to quantification of potential source and reservoir rock units in the study area as well as the petroleum system at play in the sub-basins.

National Oil has a Data Centre for storage of seismic data, well logs, well reports, other oil exploration reports and aeromagnetic as well as gravity data which has been obtained in this country to date through petroleum exploration activities. In addition, National Oil has set up cores and drill cuttings storage facility in which the rock samples retrieved during petroleum exploration in this country from 1960 to date are stored for use by those carrying out exploration.

Source: National Oil Corporation of Kenya

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Source: KeyFacts Energy