RÉGION ACADÉMIQUE
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EPREUVE SPECIFIQUE MENTION

« SECTION EUROPEENNE OU DE LANGUE ORIENTALE »

Académie de Nantes, binôme : Anglais/SVT – TOUTES SERIES

Thème 3 – Enjeux planétaires contemporains

3-A – Géothermie

Kenya one of the world leaders in geothermal energy.

Explain why Kenya is a very interesting country for the extraction of geothermal energy. Why is it an advantage for the population?

Document 1 - Hot rocks: Kenya taps geothermal heat to boost power

Zebra and antelope look on as clouds of white steam twist into the air at Hell's Gate, where Kenya's dream of providing cheap, renewable electricity is becoming a reality.

Just over a third of the 45 million people who live in Kenya have electricity, and power cuts are frequent across the network, even in the capital Nairobi.

But Africa's Great Rift Valley—where the continent is gradually tearing apart and the earth's crust is thinning—runs through the heart of Kenya, and access to hot rocks below the surface has put a wealth of geothermal power at its fingertips.

"Geothermal energy can be found probably anywhere in the world. But what makes it most accessible here is the fact that the Earth's crust is very thin, so the steam comes out very easily and hence you can use it to generate electricity," says Boniface Kipkorir, an engineer working at the Olkaria plant in Hell's Gate National Park […]

Since geothermal energy production began in Kenya in the 1980s, the technology has evolved to help make it a cleaner process. The region's underground is a geothermal hotspot, harbouring hot water sources and steam at 300 degrees Celsius (572 degrees Fahrenheit) that is piped up to the surface from depths of up to 2,000 metres (6,500 feet). When the mix reaches the plant, the steam powers a generator turbine.

Boosting electricity is a key priority for the Kenyan government, which is aiming to triple production capacity by 2020 to meet the demand that is forecast to increase by 11 percent annually.

A world leader?

The potential is immense. There are more than a dozen possible sites scattered throughout the Rift Valley which have an estimated potential of 10,000 megawatts (MW)—four times the country's current production capacity.

The development of those sites could make Kenya one of the world leaders in geothermal energy.

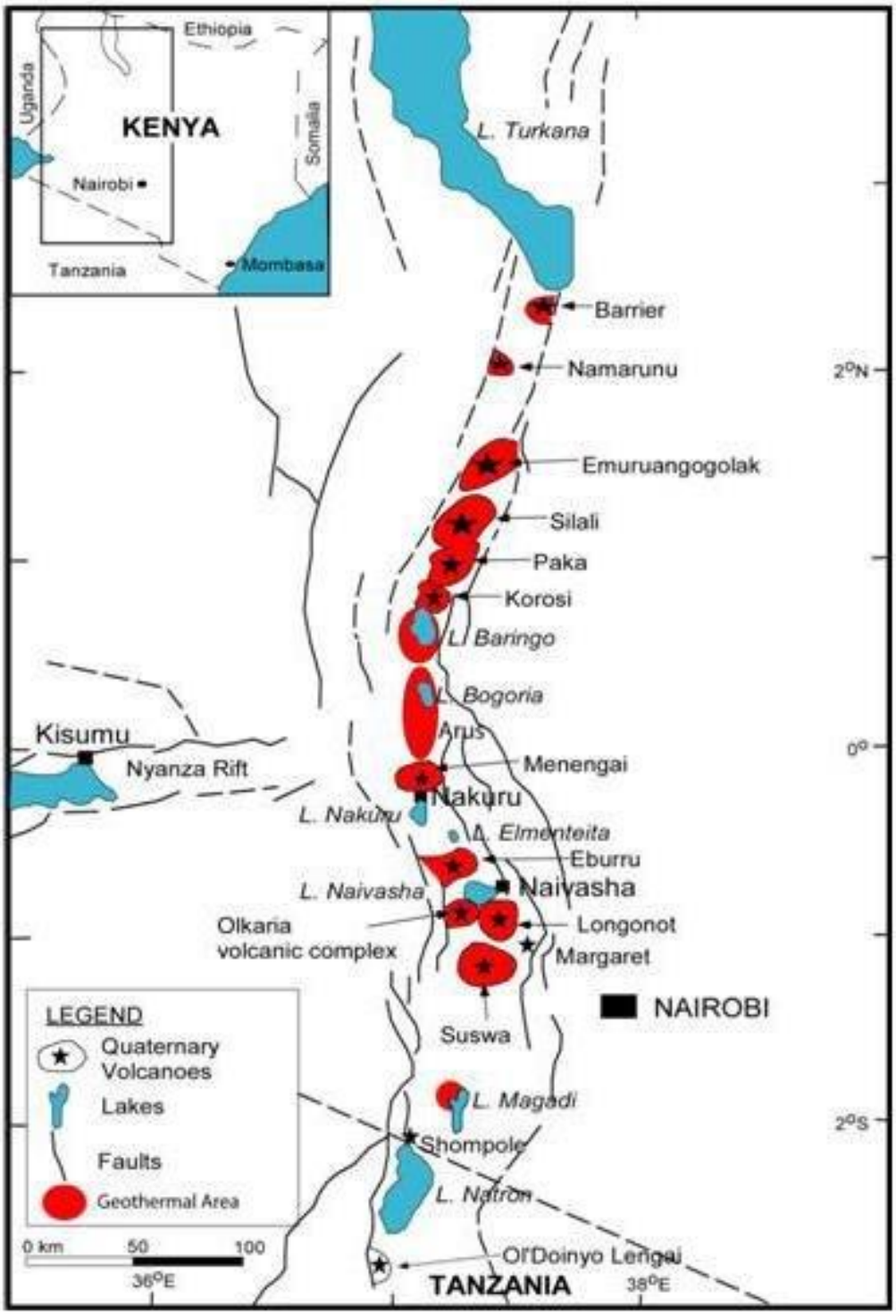
Last year, with the installation of two new production units at Olkaria, Kenya more than doubled its production of geothermal energy to 609 MW.

That makes it the world's eighth-largest geothermal producer, accounting for some five percent of global output.

Olkaria, which lies 120 kilometres (75 miles) northwest of Nairobi, is the largest geothermal plant in Africa.

March 16, 2016 by Cyril Belaud, phys.org

Document 2 - Key geothermal sites in Kenya



Alexandros Korkovelos, KTH Royal Institute of Technology, October 2015