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Two vast underground aquifers seen by satellite in Turkana county may provide much-needed water for barren area

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GULF NEWS

Nairobi: Two vast underground aquifers, storing billions of litres of water, have been discovered in the poorest and least developed area of Kenya.

The finds, in Turkana county in the north west, were uncovered using new technology to interpret ground-penetrating radar from satellites. Professor Judy Wakhungu, appointed minister of environment, water and natural resources in April, described the find as extremely significant. "It is not too deep and ought not

to be not too expensive to develop,” she added.

Wakhungu said Kenya plans to use the technology to map the entire country: “We are excited to be able to provide a national map of the country’s water resources.”

The barren semi-desert Turkana region is home to about 700,000 people. Most live off their herds of camels, goats and sheep. Temperatures rarely fall below 30C and water is scarce. “Many people have to live on around 10 litres of water a day,” said Brian McSorley, Oxfam’s water expert in Nairobi. “This is half the minimum daily requirement.”

The aquifers could change the lives of people in the region. One, close to the main town of Lodwar, is said to have a proven reserve of 10 billion cubic metres of fresh water. The other, the Lotikipi basin, further north, towards the Sudanese border, is even larger, holding at least 200 billion cubic metres of water.

These aquifers are being recharged from the surrounding plains and hills, an area of 21,000 sq km, The study indicates it is being replenished at a rate of 1.2 billion cubic metres a year more than enough to supply the entire county.

The UN scientific and cultural organisation, Unesco, backed a France-based company, Radar Technologies, founded by Alain Gachet, which began the search for the water in November. Gachet, who cut his teeth as an exploration geologist in the oil industry, developed the Watex technology to interpret radar and oil exploration

data in order to explore for water.

“We processed imagery from the space shuttle,” Gachet said. “This allowed us to build up a detailed surface map. Then we interpreted radar imagery from the Japanese space agency and deep seismic data from the oil industry. With this approach, we were able to peel back the surface of the earth like an onion.”

Among his first customers was the UN refugee agency. At the height of the Darfur crisis, the technology helped supply the refugee camps that sprang up in the desolate regions of eastern Chad, as people streamed across the border to escape the war.

The technology produces detailed maps indicating where water has accumulated deep beneath the surface. Test wells are then drilled to validate the findings. This has been done in Turkana and water was found less than 50 metres from the surface. As drilling progressed to a depth of 330 metres, three layers of the aquifer were discovered.

“They are like a series of interconnected pancakes,” said Casey Walther, a water expert who was a consultant with Unesco on the project, and now works with Gachet. “Water flows between the layers.”

McSorley said when he heard of the study he checked the technical possibility of using radar imaging with Oxfam’s experts in the UK. “The concept is not revolutionary, but the science is good,” he added.

But getting the water to the scattered people of Turkana will be no easy matter. This is among the most remote

and lawless regions of Kenya. There are sporadic raids from neighbouring Uganda, Sudan and Ethiopia. Drought and disputes over livestock have plagued the area for generations. The Turkana, Samburu and Pokot people have traditionally engaged in cattle raids, but in recent years these have increased in intensity, leaving many dead.

Oxfam gave a cautious welcome to the finds. McSorley believes the real test will be whether the infrastructure will be installed to allow the water to reach local people. He has been working at the giant Dadaab refugee camp in north-eastern Kenya for years. This lies close to another giant aquifer, but getting access to the water is not easy.

“Groundwater resources here are not an issue but many of the surrounding communities still lack a borehole or the pumps to access it,” he said. “Those that do cannot always afford the fuel to operate the generator to power the pump or have the cash to service and maintain the equipment.”

Turkana lies just south of the Ilemi triangle, a disputed border region, whose exact boundaries have never been agreed upon by neighbouring states. Quarrels over where the border runs began during the colonial period and continue to this day.

Attempting to police this remote region has been expensive. In the 1920s, British officials in Kenya and Sudan attempted to pass responsibility to one another to escape bearing the cost of the operation. The result was a dotted border running between the countries,

leaving plenty of room for disputes.

Angela Docherty, chief executive of New Ways, one of the few charities working in the Ilemi triangle, says poverty breeds these skirmishes. "All conflicts relate to scarcity of resources. Everyone is trying to survive."

Concern has increased in recent years, as oil finds have crept closer to the disputed border. The UK-based Tullow Oil company has been drilling in the area and found signs of oil in the Lokichar basin, south of Lodwar. The reserves are not yet proven, but if the region has oil and water, international attention is certain to be focused on the area.

Asked whether the combination of poorly defined borders and these important resources could raise difficulties for Kenya. Wakhungu told the Guardian that all the country's borders have issues with transboundary water. "We manage these very carefully, but I can't worry about the diplomacy. My brief is to look at the water resources."