

## Water Exploration in East Africa

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### Summary

East Africa represents one of the most prospective new regions in the world for oil and gas exploration and development. Uganda, Kenya, Tanzania, South Sudan, Madagascar, and Mozambique are particularly prospective. Much of East Africa is water stressed. Where they exist, surface water supplies are often insufficient, undependable in the long term, or unavailable for political or perceived socioeconomic reasons. As such, oil and gas companies are having to contend with exploring for groundwater to supply their exploration and development requirements. In addition, oil and gas companies, local and national governments are having to address legitimate and competitive demands for domestic, agricultural, and pastoral water needs.

This paper will discuss water exploration in East Africa using geoelectrical, electromagnetic, and seismic refraction techniques. Four types of aquifers exist in this region. These include aquifers associated with crystalline basement, sedimentary rock, recent unconsolidated sediment deposits, and Rift Valley volcanics. Examples from each of these four aquifer types will be discussed. Case studies from Kenya, Malawi, Uganda, and Madagascar will be presented. The case studies will be drawn from projects associated with oil and gas development, community water supply, and humanitarian crisis management.