

# **The power to change: Creating lifeline and mitigation- adaptation opportunities through geothermal energy utilisation**

by

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## **Abstract**

Access to modern energy services is key to economic development and progress towards the Millennium Development Goals (MDGs). Climate change presents significant threats to the achievement of the MDGs. To achieve the objectives of the MDGs and climate change strategies (mitigation and adaptation), low carbon energy resources such as geothermal energy are required.

This study focuses on the possible contribution of geothermal energy in providing energy services and creating sustainable livelihoods, while meeting the objectives of the MDGs and climate change adaptation in the eastern Baringo lowlands, within the Marigat and East Pokot districts, located in Kenya's north rift.

The potential of using geothermal energy in climate vulnerable sectors and in income-generating activities using resources within a 50 km radius is summarised in a Lindal diagram

Likewise, the potential for maladaptation from the proposed geothermal utilisation schemes are also discussed.

To derive both mitigation and adaptation synergies from geothermal utilisation, the research creates the first Geothermal Adaptation-Mitigation (*Geo-AdaM*) conceptual framework, and identifies potential co-benefits, tradeoffs and limitations.

Finally, the research highlights some of the infrastructural development and benefits from the Olkaria geothermal project in Naivasha (*electricity production and direct use*) and assesses the potential of transferring such benefits to the undeveloped East Pokot (part of eastern Baringo lowlands). This study brings to light the potential benefits before the commencement of geothermal drilling in the eastern Baringo lowlands, and is thus intended to guide geothermal developers, planners, and investors on the existing opportunities and how they can be realised to empower and improve the lives and livelihoods of locals before expensive drilling operations begin.