



Geothermal Development in East African Rift Valley: A Comparative Study in Tanzania

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Abstract

The East African Rift Valley is a geothermal-rich region, hosting significant potential for geothermal energy development. Tanzania, located within this rift valley, has seen limited geothermal exploration and utilization. A mixed-methods approach combining literature review, expert interviews, and case studies was employed. Data were analysed using thematic categorization and statistical tools to assess regional geothermal potential and existing projects' success factors. Geothermal energy development in Tanzania has been constrained by technical challenges such as high initial costs and geological variability, with a notable instance where the cost of drilling reached

50 million per well, highlighting significant investment barriers. Despite these challenges, there is an emerging trend of geothermal energy development in Tanzania. Inference is reported with uncertainty – aware statistical criteria.

Keywords: *Geothermal, Rift Valley, Tanzania, Exploration, Hydrogeology, Sustainability, Resource Management*

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