

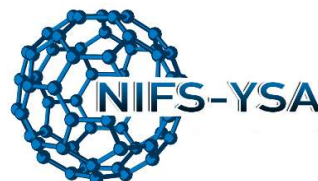
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Comparison of geothermal exploration techniques applied in Sri Lanka with those used globally: A review

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Background: Geothermal energy has a significant economic impact globally as a renewable energy resource. For proper investment on geothermal projects, it is mandatory to carry out factual geothermal resources explorations. Despite the fact that geothermal energy is economically used in many parts of the world, Sri Lanka is yet to exploit geothermal resources as renewable energy.

Objectives: This study focuses on the previous studies on geothermal resources in Sri Lanka to compare them with international exploration techniques and to identify the most suitable techniques and gaps that need to be filled in order to exploit them.

Methods: Research papers from 2015 to 2021 published across the world were reviewed and compared with those from Sri Lanka.

Results: Initial studies have been done by Dissanayake and Jayasena (1988) following geochemical studies on Kapurella, Padiyathalawa, Nelumwewa, Kinnniyai, Mahaoya, Marangala, Mahapelessa, Rankihiriya and Kiwulegama. Gravity anomaly map of Fonseka (1995) and seismic catalogue of Peiris (2007) have been used to interpret the gravity anomalies and seismic activities in geothermal areas by some researchers. During the last 10 years electromagnetic and electrical surveys have been carried out around seven geothermal springs. The structural details of the geothermal areas have been interpreted using satellite images and contour maps. No seismic or gravity surveys have been conducted in the field (except for the gravity anomaly map (Fonseka, 1995) and the seismic catalogue (Peiris, 2007) in any of the geothermal springs in recent years. No direct temperature measurements using boreholes have been conducted to determine the geothermal gradient. There are models built up globally, using remote sensing, geophysical and geochemical data, which are yet to be developed in Sri Lanka.

Conclusion: Combined geochemical, geophysical, and remote sensing investigations and models are essential to understand the nature of the geothermal systems in Sri Lanka and to develop them for power generation.

Keywords: *Geothermal, Explorations, Geophysical, Geochemical, Techniques*