Geothermal Resources Potential in Apas Kiri, Sabah

KAMALUDIN BIN HASSAN
Jabatan Mineral dan Geosains Malaysia, Sabah

The geothermal investigations of the Tawau-Semporna area, in the state of Sabah, have been discussed by many workers, who include Lim (1988); Sanudin et al., (1990); Lim et al., (1991); Tjia et al., (1992); Liau (2001); Takashima et al (2001); Ang (2002); Lim and Takahashi (2003), Takashima et al (2003), Kamaludin (2004), Javino et al (2004) and others. The earlier works, mainly done during the 80’s, had investigated on the surface water chemistry, aerial photo interpretation and limited petrographical, structural analysis and geophysical surveys. Starting after 2000, interests on the prospects of geothermal resources of the Tawau-Semporna area were revived. Follow-up investigations, even though piecemeal, have accumulated encouraging data. The TL dates, determined by Takashima et al (2001, 2002, 2003), have added to alternative interpretations on the age sequence of the rock formations in the area. The isotope and geochemical water sampling carried out in 2003-2004 have shed further lights on the thermal water properties of the area (Javino et al, 2004).

The Apas Kiri area shows the best resources potential among the Tawau-Semporna geothermal manifestations. The chemical geothermometers of Na-K-Mg show reservoir temperatures ranging 180-210°C. Meanwhile the isotopic geothermometers ¹⁸O (SO₄-H₂O) estimated the reservoir temperatures ranging 152-196°C. The geothermal potential of the Apas Kiri area is recommended best harnessed for electricity generation. Even though geothermal power generation is a new ‘thing’ for Malaysia, it has in fact benefited many countries over the world since the 70’s. It has the advantages in that it’s a clean fuel (what is emitted is just steam-or plain water), thus very environmentally friendly, reliable power generation, cheaper electricity production costs in the long run, require less land area for geothermal power plant and many others. Conforming to Malaysia’s policy on renewable energy and the promoting for a more environmental healthy power source, it is thus recommended that the Apas Kiri geothermal resources be tapped and harnessed accordingly.