

## Case Study: The Analysis of Maturity of West Buru Basin and the Potential Development of Geothermal in West Buru Island

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**Abstract :** This research shows the formation of the West Buru Basin and the potential utilization of this West Buru Basin as a geothermal potential. The research area is West Buru Island which is part of the West Buru Basin. The island is located in Maluku Province, with its capital city named Namlea. The island is divided into 10 districts, namely District Kepalamadan, Airbuaya District, Wapelau District, Namlea District, Waeapo District, Batabual District, Namrole District, Waesama District, Leksula District, and Ambalau District. The formation in this basin is Permian-Quarter. They start from the Formation Ghegan, Dalan Formation, Mefa Formation, Kuma Formation, Waeken Formation, Wakatin Formation, Ftau Formation and Leko Formation. These formations are composing this West Buru Basin. Determination of prospect area in the geothermal area with preliminary investigation stage through observation of manifestation, topographic shape and structure are found around prospect area. This is done because there is no data of earth that support the determination of prospect area more accurately. In Waepo area, electric power generated based on field observation and structural analysis, geothermal area of Waeapo was approximately 6 km<sup>2</sup>, with reference to the SNI 'Classification of Geothermal Potential' (No.03-5012-1999), an area of 1 km<sup>2</sup> is assumed to be 12.5 MWe. The speculative potential of this area is  $(Q) = 6 \times 12.5 \text{ MWe} = 75 \text{ MWe}$ . In the Bata Bual area, the geothermal prospect projected 4 km<sup>2</sup>, the speculative potential of the Bata Bual area is worth  $(Q) = 4 \times 12.5 \text{ MWe} = 50 \text{ MWe}$ . In Kepala Madan area, based on the estimation of manifestation area, there is a wide area of prospect in Kepala Madan area about 4 km<sup>2</sup>. The geothermal energy potential of the speculative level in Kepala Madan district is  $(Q) = 4 \times 12.5 \text{ MWe} = 50 \text{ MWe}$ . These three areas are the largest geothermal potential on the island of West Buru. From the above research, it can be concluded that there is potential in West Buru Island. Further exploration is needed to find greater potential. Therefore, researchers want to explain the geothermal potential contained in the West Buru Basin, within the scope of West Buru Island. This potential can be utilized for the community of West Buru Island.

**Keywords :** West Buru basin, West Buru island, potential, Waepo, Bata Bual, Kepala Madan

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