LITHOLOGIC ORDER MAPPING AND ROCK RESOURCES INVENTORY OF KUTAWARINGIN QUADRANGLE, WEST JAVA

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ABSTRACT

In general, the southern part of Bandung is composed of rocks produced by volcanic activity. Research in this region based on the want to understand the geology of volcanoes in Bandung and surrounding areas including the origin of the formation of the Bandung Basin (Bronto & Hartono, 2006). The Bandung basin is almost surrounded by volcanoes; even in the midst there is also volcanic rock (Silitonga, 1973, Alzwar drr., 1992). Information about why and how the area of Bandung to be controlled by volcanic rocks is needed to find out more potential resources as well as geological disasters due to volcanic activity. This study aims to decide the history of volcanism in South Bandung. I want to represent a complex area seen from the diversity of geological and rock environment conditions. This diversity condition controls the landscape and geological conditions observed at this time. The purpose of the preparation of this study is to be used to develop the Stratigraphic order and inventory of minerals.

Keywords: Kutawaringin, stratigraphy, resource potential

INTRODUCTION

Today's exist earth relief is a long term processes that includes endogene and exogene forces. The geo-history and chronology can be observed by research, including surface mapping which done by descripting outcrops and rocks sample, then produce it into stratigraphical records of mapped area. Research related to resources support and sustainability will have significant impact on futures local economy development. The Kutawaringin quadrangle, West Java (Figure 1) contain interesting geological condition and resources which encourage authors to do research in this area.

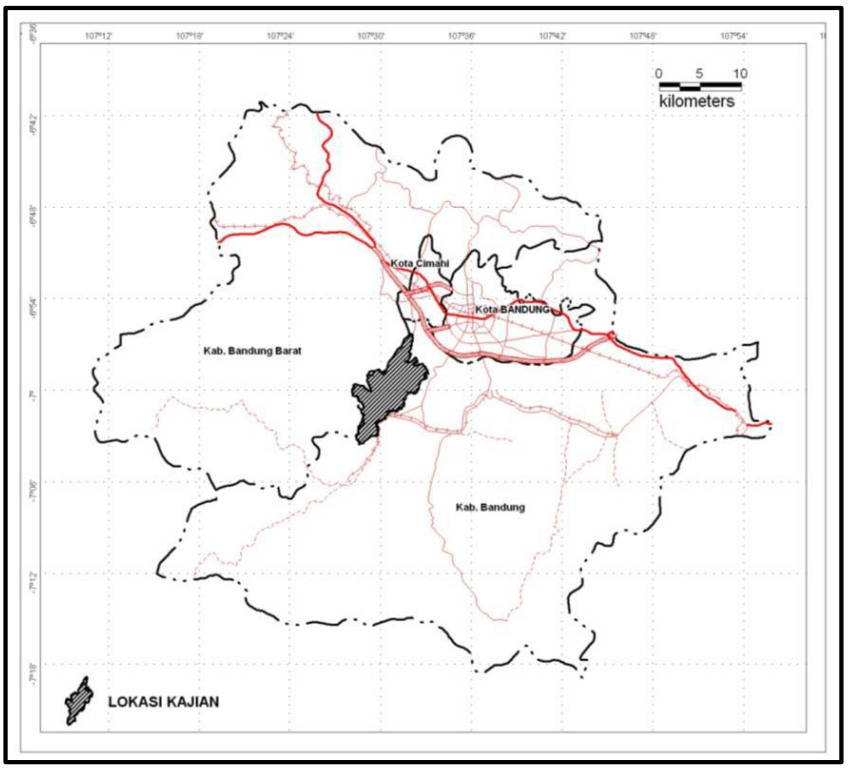

Figure 1. Location and access map of research area

RESEARCH METHODS

West Java's phisiography consists of aluvial plain, structural hills, and volcanoes (Figure 2). According to van Bemmelen (1949), West Java phisiography divided into four zone; Jakarta Zone, Bogor Zone, Bandung Zone, and Southern Mountain Zone. The research area specified into Bandung Zone.

The Bandung zone is on the southern part of Bogor Zone, spreading 20 km – 40 km widely covering Pelabuhanratu, Cianjur, Bandung, end in Kuningan. Most of the part of Bandung Zone contains step hills morphology divided with wide valley. The Kutawaringin quadrangle have hills topography in western part, plain on the eastern part to Ciwidey River.

The steps of this research is; (1) preparation including secondary data gathering, satelite images, topography and regional geology map; (2) fieldworks including surface mapping. The GPS-trace and field orientation method used in the surface mapping.

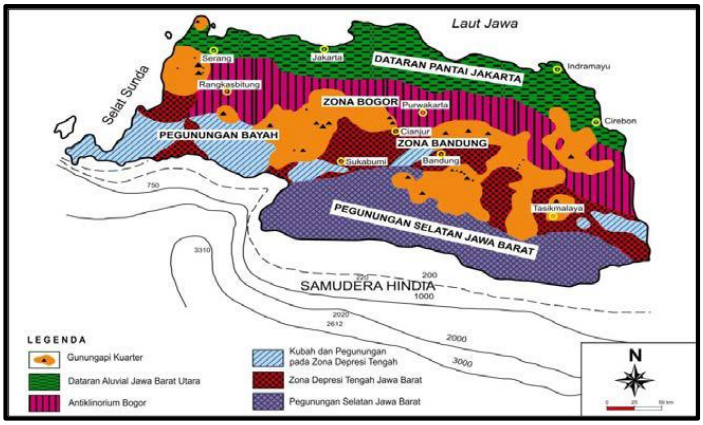

Figure 2. West Java phisiography divided into five zone (Van Bemmelen, 1949)

RESULT AND DISCUSSION

The geomorphological feature of the study area mostly consist of hills from western to southern part, and plain on northern and eastern part with highest altitude at 1334 m (G.putri) on the southern part of research area. According to topographical analysis, research area can be divided into six geomorphic units (Figure 3); (1) Plain acustrine Deposit Unit; (2) Wavy Plain Volcanic Unit; (3) Steep Hills Volcanic Unit; (4) Steep Hills Intrusion Unit; (5) Moderately Steep Volcanic Hills Unit; (6) Moderately Steep Intrusion Unit. These unit divided by morphometric, morphography, and morphogenetic aspect.

Stratigraphy of the research area divided by unofficial lithostratigraphic units (Sandi Stratigrafi Indonesia, 1996), which refers to characteristic of lithology, similar lithology, and other rock symtomps, which named by its dominan visible characteristic founded. The stratigraphical position determined by cross cutting relationship and superposition of regional data and previous publication. The author divided four rock unit (Figure 4) from the yougest; (1) Quartenary Lacustrine Deposit (Qi), consist of tuffaceous clay, tuffaceous sand, tuffaceous gravel, form of limestone concression as leftover of freshwater mollusca, vertebrae spine, and occurence of breccia in several places; (2) Pleistocene Breccia (Pb), consist of tuffaceous breccia, lava, sandstone, and conglomerate. The breccia has sandstone matrix with andesitic and basaltic component. Forming irregular ridge, sometimes very steep; (3) Miocene Andesite (a) commonly as hyperstein hornblend andesite augite and leuco-andesite, high occurence of glass and feldspar; (4) Miocene Dacite (b) commonly as dacite, horblend dacite, and horblend dacite augite joint with 100 – 200 m average thickness.

The potential resources in research area is andesite. It is supported by fact that local community already producing andesite from traditional mining as local comodity. Recorded there is already two andesite mining site with reserves more than 20.000 m^3 (Figure 5). It is suppose to be more area in Kutawaringin quadrangle that can be optimized for andesite mining.

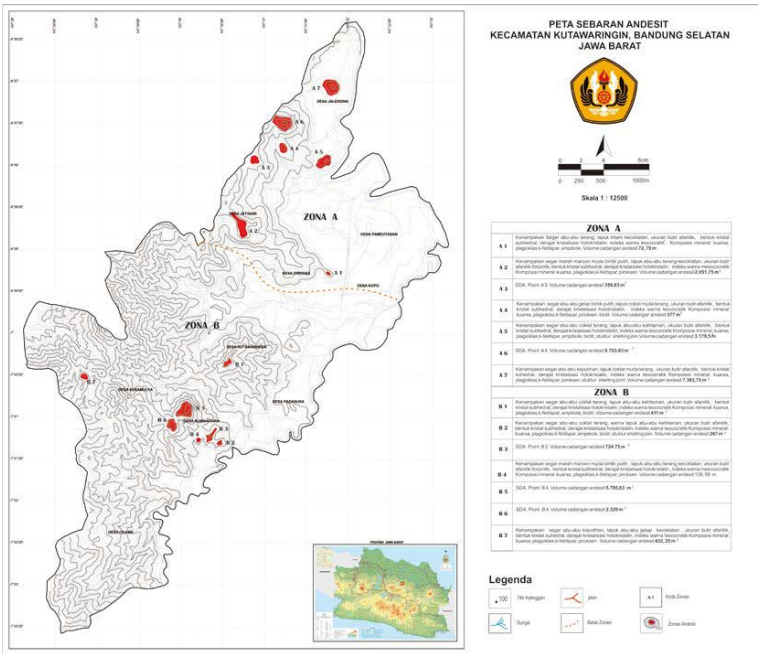

Figure 3. Andesite distribution map

CONCLUSSION

1. Kutawaringin qudrangle has complex geological background by its geological features.
2. This diversity controlling the geomorphic units and recent geological condition.
3. There is several potential rocks that can be economically optimized as mine land.
4. Stratigraphic condition of research area strongly affected by volcanic activity.

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