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## Gold Mineralization in Paningkaban Areas Gumelar Sub-District, Banyumas Regency, Central Java

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**Abstract:** Hydrothermal alterations formed in the research area are carefully grouped into three types of alteration zoning and they are argillic alteration, propylitic alteration and sub-propylitic alteration. The mineralization then is carefully classified as pyrite ( $\text{FeS}_2$ ), chalcopyrite ( $\text{CuFeS}_2$ ), galena (Pbs), bornite ( $\text{Cu}_5\text{FeS}_4$ ). In the research area, the mineralization process is controlled by geological structure such as fault and joint. The appearance of the mineralization is abundant and can be found many fulfilling the joint zone mainly shear joint trending Northeast-Southwest and Northwest-Southeast, the direction of joint sharpness measured in the field relatively trending North-South. This study will emphasize on the measurement and detailed analysis to know more about the gold mineralization process and other minerals controlled by structures patterns. The structural control analysis can really be a good helping hand in locating the mineralized areas because basically the activity and geological structure control process are corridor for magma and the its rest compound that brings minerals, so, the methods of mineral ores exploration by structure control can be used in determining ore gold mineralized deposits precipitate on gold deposits system and other minerals on a different area.

**Keywords:** Hydrothermal, alteration, structure, mineralization, deposits

### INTRODUCTION

Patterns and models of geological structures is crucial in determining the where abouts of gold mineralization and other ore deposits at a certain area and when the patterns and models of geological structures are already known, then if gold mineralization and ore being found, it will be easier to determine its existence (Goryachev and Pirajno, 2014). This area is an example area that the gold mineralization can be found relatively well in Central Java which until today is still being explore to obtain the existence of economical gold deposits.

Gold mineral and its accompanying minerals contained or crystallized in the veins of quartz (the magma residue/late magmatic) at the fracture/joint lines both in the tension fracture and shear fractures (shear zones) as well as the fault lines (fault zones). Quartz veins structure follows the pattern of fractures and faults in the research area that is trending Northwest-Southeast, Northeast-Southwest, North-South and West-East. Based on analysis regional structure, Paningkaban and its surrounding areas are a tectonic shift patterns Sumatra and Java tectonic pattern (Condon *et al.*, 1996).

From the preliminary results, the geological structure and its relationship with mineralization and gold deposits

in the Paningkaban area and its surrounding shows that there is an indication that the gold mineralization in quartz veins controlled by geological structure pattern. It is based on some researchers review results that the AAS analysis result on a sample of quartz veins in tension and compression fracture shows Au element (gold) is relatively high.

Generally, based on the selected structural lines in the Paningkaban area and its surroundings show that the structure pattern of the fractures and quartz veins are trending NW-SE (Northwest-Southeast), NE-SW (Northeast-Southwest), N-S (North-South) and some E-W (East-West). Furthermore, this research proposal will continue the study measurement and detailed analysis in the alignment area to obtain the certainty of any gold deposits and models that controlled by the structure patterns in such area.

### MATERIALS AND METHODS

The methodology of the research is focusing in the secondary data collecting along with some previous studies results both published and unpublished. The primary data begins with landsat imagery and topography maps analysis, then followed by surface mapping

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