

ABSTRACT

Western Java is a part of the Sunda Banda magmatic belt. This belt is well known to be host for several gold deposits in Indonesia, the distribution of 107 Au occurrences in this area was examined in terms of spatial association with various geological phenomena. In this study area, GIS and the method of weight of evidence are used for gold potential mapping.

The weight of evidence method is one of the most important data-driven methods for mapping in GIS. This method is a probability based on technique for mapping mineral potential using the spatial distribution of known mineral occurrences. There are six evidences maps such as NE-SW lineaments, NW-SE Lineaments, host rocks, heat source, clay alteration and limonitic alteration, have been combined using a weights of evidence model to predict gold potential in West Java.

The best predictive map generated by this method defines 21.62% (9902 km²) of study area as favourable zones for gold mineralization further exploration work. It predicts correctly 74 (92.5%) of the 80 model deposits and predicts correctly 26 (96.35%) of the 27 validation deposits, has 6 main prospective target for further exploration are located in Bayah Dome, southern mountain, Honjie Igneous Complex and Bogor zone, Purwakarta. Bayah Dome is highest potential area for gold deposit like Gunung Pongor, Cikidang, Cirotan, Ciawitali, Cikotok districts and other deposits. The potential area of Au occurrences in research area is associated with NE-SW and NW-SE structure/ lineaments, dominated surrounding the Tertiary extrusive volcanic rock and intrusive rock unit and hosted in Miocene to Pleistocene lithology rock unit.

Keyword: GIS, weight of evidence method, mineral potential mapping, Bayah Dome, Bogkor, West Java.