

SPATIAL CORRELATION OF SETTLEMENTS AND SPRINGS AS INDICATORS OF HUMAN-VOLCANO SYSTEM IN THE VOLCANIC LANDSCAPE OF CENTRAL JAVA

by Suhadi Purwantara, Nurul Khotimah, Arif Ashari, Sutanto Tri Juni Putro

ABSTRACT

In a volcanic environment, the presence of springs has an important meaning as an indicator of the high potential of water resources. The genesis of these springs is strongly influenced by the geomorphological characteristics of the volcanic landform itself, which is then uniquely expressed in the distribution pattern of the springs. This study aims to (1) analyze the distribution pattern and hydrological characteristics of springs in the volcanic landscape of Central Java, (2) analyze the distribution pattern of settlements in the volcanic landscape of Central Java, (3) analyze the human-volcano system based on indicators of the distribution pattern of springs and settlements. . This study uses a descriptive-exploratory research design with a geographic approach, namely a regional complex approach. This study also uses the themes of geography in analyzing the problem. The subject of this research is the volcanic landscape in Central Java, while the object of this research is the distribution of settlements and springs. To find the location of the springs, a survey was conducted using a systematic sampling method. Data collection is done by observation, interpretation of remote sensing imagery, literature study, and documentation. The data that has been obtained is then analyzed using GIS analysis, statistical analysis, supported by descriptive analysis. GIS analysis was performed using average nearest neighbor and buffering techniques. The results showed: (1) The appearance of springs in volcanic landforms has a distinctive distribution pattern. Each type of volcano has a different distribution pattern. The pattern found in the stratovolcano is clustered at the foot of the volcano, while the volcanic complex is random. Various geomorphological aspects greatly affect the distribution pattern of the springs, including morphology, material, geomorphic processes, and staging. The hydrological characteristics of springs vary widely. Various geomorphological aspects also affect water quality, including material (lithology), ongoing volcanism processes, and even advanced denudation processes and stages. (2) The distribution of settlements on volcanic landforms is more complex than the distribution of springs. In stratovolcano landforms, there are clustered, random, and scattered settlement patterns. Meanwhile, the volcanic complex has a clumped pattern. (3) the human-volcano system in the research area is not characteristic of settlements close to springs and the pattern of distribution follows the springs, but in the form of local wisdom on the use of springs.

Kata Kunci: *Volcanic landscape, settlement, spring*