Environmental and Infrastructure Characteristics Relation to the Level of Preparedness in the Merapi Eruption Disaster-Prone Areas

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ABSTRACT

This research was conducted in disaster prone areas II and III of Merapi Volcano with aims to: (1) Developing spatial databases on environmental and infrastructure conditions in disaster-prone areas of southern slopes of Merapi Volcano, (2) Analyze the effect of current environmental conditions on disaster preparedness, (3) Analyzing the difference of environmental conditions among settlement areas in influencing disaster preparedness level. This research uses descriptive research method that aims to explain the phenomena in detail. The approach using spatial approach with theme of spatial pattern analysis, spatial structure analysis, and spatial system analysis. The population in this study is the entire southern slopes of Merapi Volcano and its social cultural elements in disaster prone areas II and III. Physical aspect sampling to identify the condition of physical environment and infrastructure is done by purposive sampling technique that is several settlements scattered between the landform units of the volcanic slope, volcanic foot, and volcanic foot plain. There are 27 settlement areas used as sample observations based on variation of landform unit, distance from eruption center, and distance from the main river channel. Sampling to know the level of preparedness is also done by purposive sampling technique that is on community members who play a role in disaster risk reduction organization. Data collection is done by interview, observation, and documentation. The analysis used is descriptive analysis supported by statistical analysis and spatial analysis. The results: (1) Spatial databases are an indispensable component in supporting disaster risk reduction efforts. The updated database will provide information related to vulnerability in the community and the ability to cope with disasters. The physical environment database developed includes geological, geomorphological, and hydrological conditions, coupled with infrastructure related to disaster risk reduction. (2) The condition of the physical environment and infrastructure is related to disaster risk. Physical environment conditions determine the type of eruption hazard while the infrastructure affects the handling of emergency disaster situations. Areas of settlement that have more dangerous physical environment conditions tend to form a high level of preparedness. Aspects of physical environmental conditions resulting in different hazards that affect preparedness are mainly altitude, distance from the eruption center, distance from the main river channel, and hydrological factors that determine the potential of surface water resources.

Kata Kunci: *Environment, Infrastructure, Preparedness, Disaster, Merapi*