ABSTRACT

West Java, as part of Indonesia, lies within the Ring of Fire — an area where a large number of earthquakes and volcanic eruptions occur around the Pacific Ocean basin. According to Statistics Indonesia (BPS, 2023), West Java ranked first among provinces with the highest number of natural disasters in 2023, recording a total of 844 incidents. These events resulted in significant infrastructure damage and both direct and indirect fatalities reaching 3,314,997 people.

In accordance with BNPB Regulation No. 12 of 2014, business entities play a strategic role in supporting disaster management efforts. The term "business entities" refers to legal entities that may take the form of state-owned enterprises, regionally owned enterprises, cooperatives, or private companies established under prevailing laws and regulations, operating permanent and continuous business activities within the territory of the Republic of Indonesia. However, based on the current condition at the West Java Provincial Disaster Management Agency (BPBD), partnerships in 2024 were established primarily through direct appointments via the e-catalog system. During the partner selection process, BPBD West Java Province has not yet employed a systematic and structured reference framework for selecting business partners. Given this condition, this research aims to propose selection criteria for choosing business entities as partners of BPBD West Java Province using a needs-based approach.

Fuzzy Analytical Hierarchy Process (FAHP) is a method that can be used to evaluate and prioritize critical success factors, with an approach used to overcome uncertainty in expert judgment by converting linguistic data into a fuzzy scale. This approach helps in giving more accurate priority weights to the criteria and sub-criteria to be assessed. Each criterion and sub-criteria are organized into a hierarchical structure based on literature review and adjusting to the needs of the West Java Provincial BPBD through the results of interviews. Then data collection is obtained through questionnaires to those authorized in decision making at BPBD West Java Province.

The research results show that the organizational criterion ranks first with a weight percentage of 47%, as it relates to the capabilities of potential partners and the

clarity of their organizational structure. Furthermore, the global weight results for the operational sub-criteria place quality as the highest-ranking sub-criterion, with a weight percentage of 35%. This indicates that quality assurance and service standards provided by partners are crucial for improving efficiency in disaster response. In the organizational criterion, the sub-criterion with the highest weight is regulatory compliance, with a weight of 44%. Meanwhile, within the geographical criterion, the sub-criterion with the highest weight is infrastructure accessibility, with a weight of 74%.

Result verification is conducted to ensure that the processed data is valid and reliable, and that the resulting priority weights align with actual conditions. Fuzzy AHP verification is carried out by conducting a consistency test on all pairwise comparison matrices from each respondent who provided data with more than two comparisons. The consistency test is considered valid if the consistency ratio is ≥ 0.1. Subsequently, the results are validated by stakeholders from BPBD West Java Province. The validation results from decision-makers generally indicate that the structure aligns with the main needs, although further practical approaches are still required for operational implementation to better suit field conditions.

The proposed criteria can be further studied and developed by expanding the scope of respondents to include potential private sector partners, and by applying other decision-making methods to obtain more comprehensive results. This research only provides proposed criteria for establishing partnerships; therefore, future studies can further develop the weighting results of each criterion and sub-criterion, such as by designing a dashboard-based system for future provider selection.

Keywords: Disaster Management, humanitarian logistics, business organizations, Partnership, Proposed Criteria, fuzzy AHP