

## ABSTRACT

*Indonesia is the meeting point of four tectonic plates, namely the Asian tectonic plate, the Australian tectonic plate, the Indian Ocean, and the Pacific Ocean. This makes Indonesia vulnerable to natural disasters, with approximately 3,542 natural disaster events occurring in 2022. On November 21, 2022, an earthquake of 5.6 magnitude occurred in Cianjur Regency. According to the report from the Cianjur Regional Disaster Management Agency (BPBD) as of December 17, 2022, there were 602 fatalities and 114,683 displaced individuals across 16 affected districts out of a total of 32 districts in Cianjur Regency. The earthquake damaged buildings, causing social and economic sectors to falter, making it difficult to fulfill basic needs, education, and healthcare. Disaster response agencies are needed for logistic aid distribution. The Cianjur Regency Regional Disaster Management Agency (BPBD) plays a crucial role in the pre-disaster, disaster, and post-disaster phases. One of BPBD's tasks is disaster management implementation, including facilitating the distribution of logistic aid to affected areas. In the distribution process, speed and accuracy are paramount in humanitarian logistics. Therefore, time, referring to ambulance service time needs to be considered, with a round-trip distribution time of a maximum 60 minutes for effective service. Additionally, cost correlation with time is essential for accurate allocation. Based on a maximum distribution time of 60 minutes to each affected district, the total maximum transportation cost that can be incurred over 65 days is Rp 53,040,000. However, in the distribution of aid for the 2022 Cianjur earthquake, there was an issue of the total transportation cost exceeding Rp 53,040,000 over 65 days. This problem arose due to inadequate warehouse location planning during natural disasters. All warehouses were located in only one district, Cianjur District, resulting in high transportation costs due to doubled distribution time during disasters, caused by traffic jams and infrastructure damage. Therefore, temporary warehouse planning is necessary to stabilize transportation costs and optimize excess funds for the community's basic needs. Temporary warehouse planning will determine the location of temporary warehouses covering all affected district areas, aiming to establish coverage for each temporary and main warehouse in affected districts, minimizing transportation costs. This planning is conducted using the Location Set*

*Covering Problem (LSCP) method, which minimizes facility costs while covering all areas. In this study, transportation cost parameters are considered as facility costs, and travel time between affected district areas in Cianjur Regency serves as the basis for selecting temporary warehouse location candidates. Temporary warehouse planning through Location Set Covering Problem (LSCP) will select temporary warehouse candidates with low transportation costs and coverage of district areas with travel times below 60 minutes. The use of the Location Set Covering Problem (LSCP) results in the recommendation of four temporary warehouse locations in Pacet District, Mande District, Warunkondang District, and Sukaluyu District. Each warehouse has coverage, with the main warehouses covering two affected districts, the Pacet temporary warehouse covering four affected districts, the Mande temporary warehouse covering two districts, the Warunkondang temporary warehouse covering three affected districts, and the Sukaluyu temporary warehouse covering five affected districts, with a total transportation cost over 65 days of Rp 42,896,100 and can minimize transportation costs by 46%.*

***Keywords — Humanitarian Logistics, Temporary Warehouse, Logistics Aid Warehouse, LSCP, Cianjur Earthquake 2022***