

ABSTRACT

Dengue Fever is an endemic disease spread by the Aedes aegypti mosquito. In Indonesia, particularly in Bandung City, Dengue Fever presents a significant public health challenge due to the high number of recorded cases. This study aims to assess the distribution patterns of Aedes aegypti mosquitoes and Dengue Fever cases by applying the Spatial Autoregressive Model (SAR), implemented using MATLAB. The research utilizes secondary data sourced from the Health Department, Community Health Centers, the Meteorology, Climatology, and Geophysics Agency (BMKG), and the Central Statistics Agency (BPS) of Bandung City over the last five years.

The analysis initially focused on six districts in Bandung City: Antapani, Arcamanik, Buahbatu, Gedebage, Kiaracondong, and Rancasari. These districts were chosen due to their high incidence of Dengue Fever cases in 2024 and their proximity to Telkom University. The study will later be extended to encompass the entire city. Mapping results show that Kiaracondong district has consistently experienced the highest frequency of Dengue Fever cases over the past five years. Environmental factors such as temperature, humidity, and rainfall significantly influence mosquito breeding. The SAR model proves more effective in addressing spatial autocorrelation in the data than the OLS (Ordinary Least Squares) approach.

This research is expected to support government and health workers' efforts to design more effective and data-driven prevention strategies, increase public awareness, optimize interventions in priority areas, and reduce the potential for future outbreaks.

Keywords: *Aedes aegypti, Dengue Fever, Bandung City, Distribution Pattern, Spatial Autoregressive (SAR).*