

The Correlation of Urban Climate and Dengue: Metro Manila and Bandung Cases

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Dengue fever is a rapidly emerging mosquito-borne viral disease in tropical and subtropical urban cities. A growing evidence base demonstrates the causal link between climate-driven factors and dengue epidemiology. A general hypothesis tested by environmental epidemiologists is that urban climate such as temperature and precipitation affect the mosquito vector's biology and ecology therefore, increasing the risk of dengue transmission. The main objective of this study was to associate the spatial and temporal variations among three eco-epidemiological elements; namely, local dengue incidence, mosquito abundance, and climate factors using observation data in Metro Manila, Philippines and Bandung, Indonesia. Results of the spatial analysis showed high predictive power of local flood and land use parameters in modeling the spatial variation of dengue incidence. Temporal correlation analysis using time series data demonstrated the lag effects of climate parameters and El Niño-Southern Oscillation index on the increase of dengue cases. The findings can be applied to predict future dengue risk under global climate change, and thus to implement proper adaptation for dengue control.

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