

## **ABSTRACT**

### ***Rainfall Spectrum Analysis Due to Climate Change in the Bekasi River Basin***

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*The irregular and increasingly intense rainfall, even during the dry season, indicates dynamic climate variability that warrants attention in the Bekasi River Basin (DAS Kali Bekasi). Between 1991 and 2020, a statistical analysis was conducted to examine the relationship between rainfall and various climate parameters—including minimum and maximum temperature, air humidity, wind speed, solar radiation duration, and the ENSO index. The results revealed that rainfall trends generally increased after 2010, although the upstream area experienced a decline from 2005 to 2015. The downstream area demonstrated a more stable trend, consistent with regional patterns. Air humidity exhibited the most consistent positive correlation with rainfall, while temperature and solar radiation tended to show negative correlations. Global climate phenomena such as ENSO had a stronger influence in upstream areas, while local climatic parameters played a more significant role downstream due to urbanization and microclimate formation. These findings indicate that both global and local climate changes exert measurable but regionally distinct effects on the rainfall spectrum in the Bekasi River Basin.*

**Keywords:** *Rainfall spectrum, climate change, Bekasi River Basin, statistical analysis*

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