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Natural Disasters in India: A Comprehensive Analysis of Events, Impacts, and Mitigation Strategies

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***Abstract*—** A noteworthy tendency emerges from the examination of natural disasters in India from 1900: although the number of documented catastrophes has grown, the mortality toll has dropped. Nonetheless, there are notable differences in the fatality rates between various catastrophe categories and geographical areas. Furthermore, more study is required because there seems to be a possible association between some calamities and rising temperatures. However, biases including few data examples and reporting inequalities call for caution. This work uses ARIMA and linear regression techniques to solve these problems. The study's main concern is the disparity between the number of natural disasters that have been reported in India since 1900 and the number of people who have died as a result of these catastrophes. Furthermore, there are notable differences in the fatality tolls across various types of disasters and geographical areas. Furthermore, it is imperative to examine any possible association between certain categories of natural calamities and increasing temperatures. This study uses two primary approaches (linear regression and ARIMA) to solve the concerns found. Data patterns are analyzed using linear regression, with a focus on the correlation between natural catastrophes, mortality tolls, and plausible causes like climate change. Taking into account the temporal component of natural catastrophes, ARIMA (Auto-Regressive Integrated Moving Average) modeling is used to anticipate future trends and detect patterns in the data.

Keywords— Natural disasters, India, Trends, Death toll, Climate change, Linear regression, ARIMA, Biases, Mitigation strategies