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Impact of Climate Shift on Rainfall and Temperature Trend in Eastern Ganga Canal Command

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Every irrigation project is planned considering long-term historical climatic conditions, however, the velocious climatic shift and change has come out with such circumstances which were inconceivable in past. Considering this as the core, in the present study, scrutiny of rainfall and temperature trend has been carried out over the command area of Eastern Ganga Canal project for pre-climate shift period and post-climate shift periods. Non-parametric Mann-Kendall and Sen's methods have been applied to study the trends in annual, seasonal rainfall and rainy days; average annual, seasonal temperature. Results showed decreasing trend of 48.11 to 42.17mm/decade in annual rainfall and 79.78 to 49.67mm/decade in monsoon rainfall in pre-climate to post-climate shift periods, respectively. The decreasing trend of 1 to 4 days/decade has been observed in annual rainy days from pre-climate to post-climate shift period. Trends in temperature revealed that there were significant decreasing trends in annual (-0.03ºC/yr), Kharif (-0.02ºC/yr), Rabi (-0.04ºC/yr) and summer (-0.02ºC/yr) season temperature during pre-climate shift period; whereas the significant increasing trend (0.02ºC/yr) has been observed in all the four parameters during post climate shift period. These results will help project managers in understanding the climate shift and lead them to the development of alternative water management strategies.
Key Words: Climate shift, Rainfall trend, temperature trend, Mann-Kendall test, Sen slope estimator, Eastern Ganga Canal (EGC) command.