Effect of Rainfall Changes on Tea Yield Using Standardized Precipitation Index in Badulla

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The variations in the rainfall pattern is very essential to understand the drought and wet conditions in tea growing areas. Standardized Precipitation Index (SPI) is provided one of useful tool to understand the drought and wet conditions of selected location/s or country. The objective of this study is to identify the impact of rainfall changes in tea growing estates of Badulla region and evaluate its effects on tea yield. Therefore,rainfall and tea yield data were collected from Ury, Telbedde, Spring Valley estates in Badulla region for the period of 1987 to 2016. Change point analyzer was used to understand the changes in rainfall and yield, Mann-Kendall test was used to identify the trend of these data. The 12-month SPI for January to December showed an increasing trend in Spring Valley estate and it indicated higher chance of occurring wet events; whereas decreasing trend in Telbedde estate showed there is a chance of occurring drought events, while Ury showed no trend. The 5-month SPI which is representing desirable period of tea harvesting (South-West monsoon) from May to September showed a decreasing trend which led to high chance of occurring drought events in Telbedde while other estates have no any trend. Also it showed there was a decline in the annual yield by 10 to 32 kg ha^{-1} per year in Badulla regionThe results of the study revealed that there is a highrisk of changing rainfall pattern in near futurewhich can affect on yield reduction in Badulla region.

Keywords: Drought, Rainfall, Standardized Precipitation Index (SPI), Tea