

EFFECT OF DROUGHT INCIDENCES ON PADDY PRODUCTION IN SRI LANKA

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Drought is a recurrent phenomenon in many parts of the world, including Sri Lanka. Significant drought occurrences were observed during 1986/1987, 1992, 1996, 2001 and 2004 in the country. This study attempts to empirically develop a suitable drought-monitoring tool by using paddy production and rainfall data from 1980 to 2010 in Sri Lanka. Decline of national paddy production and paddy production of major paddy producing districts due to precipitation reduction was considered as the outcome indicator to signify the drought incidence. The Standard Precipitation Index (SPI) was used as the drought-monitoring tool. The SPI was calculated using precipitation data from 74 meteorological stations with the help of Spi_SL_6 software. A seasonal drought study was carried out considering 6 months SPI for 2 seasons, March to August (MAMJJA) as *Yala* season and September to February (SONDJF) as *Maha* season. Arc GIS 10.2.1 software was used for interpolation. Results revealed that, there was a significant positive correlation ($p > 0.05$) between the seasonal paddy production and SPI for both *Yala* ($r = 0.5261$) and *Maha* ($r = 0.3046$) seasons. Paddy productions of major paddy producing districts showed a significant correlation with SPI. The SPI can be successfully used to assess the drought conditions in Sri Lanka. Drought has a significant effect on paddy production in Sri Lanka, especially in major rice producing districts. The SPI can be used for long term planning of agricultural activities and water management, especially in major rice producing districts in Sri Lanka.

Keywords: Drought, GIS, Paddy production, SPI, Sri Lanka