A ANALYSIS ON RAINFALL VARIATION WITHIN THE PREVIOUS 60 YEARS IN DEDURU OYA BASIN IN SRI LANKA

WMSB. Wanninayake[1], KWG. Rekha Nianthi[2], OG. Dayaratne Banda[3]

Sri Lanka is a tropical island that is extremely susceptible to climate change's negative impacts. Climate variability and change pose a threat to a variety of sectors, notably water, soil, agriculture, ecosystems, and people's livelihoods. The amount of rainfall in a basin is essential to the ecosystem's functioning and mankind's well-being. The quality and quantity of water resources will be affected by variations in rainfall, which are below or above the average. The rainfall variability and trend in Sri Lanka's Deduru Oya basin were examined in this study. The Deduru Oya basin is one of Sri Lanka's major river basins with a catchment area of 2616 km2 and is located in the northwestern region of the country. It contains three climatic zones: wet, intermediate, and dry, with the intermediate zone taking account of 94% of the extent. The monthly rainfall in the Deduru Oya basin has been decreasing from 1960 to 2019. Rainfall peaks were found from April to May and October to November, with a median monthly rainfall of 110 mm. In 1960, the average monthly rainfall was 140 mm, however, by 2019 it has decreased to 108 mm. Over the last 60 years, rainfall has dropped by 32 mm. According to the climatic seasons, the Second Inter Monsoon season (576 mm) had the maximum cumulative rainfall, followed by the South West Monsoon (475 mm), the First Inter Monsoon (314 mm), and the North-East Monsoon (304 mm). From 1960 to 2019, the rainfall trend during the First Inter Monsoon season has been increasing, while rainfall trends during the SWM, SIM, and NEM seasons have been decreasing. Between 1960 and 2019, the annual rainfall in the basin declined on average. The 1980s and 2000s experienced positive trends in decadal rainfall, while the other decades saw negative trends. The study of the changing patterns of rainfall will be important for water resource management, agricultural activities, and disaster risk management in the basin.

Keywords: Rainfall trend, Rainfall Variation, Climatic Season, Disaster Risk Management, Deduru Oya basin

[1] *Department of Environmental Management, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka, Mihinthale.* sisirawanninayake@gmail.com
[2] *Department of Geography, University of Peradeniya.*
[3] *Department of Economics and Statistics, University of Peradeniya.*