

## ASSESSMENT OF FUTURE DROUGHT HAZARD TO AGRICULTURAL AREA IN MUN RIVER BASIN, THAILAND

Thanasit Promping<sup>1</sup> and Chutipat Foyhirun<sup>1\*</sup>

<sup>1</sup> Department of Civil Engineering, Faculty of Engineering at Sriracha, Kasetsart University Sriracha  
Campus, Chon Buri, Thailand.

\*Corresponding author address: chutipat@eng.src.ku.ac.th

### *Abstract*

The Mun River Basin is one of the river basin in Thailand that is faced drought disaster. It impacts to agriculture area of country which was a huge loss of income. Thus, this research presents an assessment of drought to agricultural area in Mun River Basin under climate change projection from three Regional Climate Models (RCMs) under two Representative Concentration Pathway (RCP4.5 and 8.5). The future projection is considered into three future period 2020s, 2050s and 2080s. The study used Standardized Precipitation Index (SPI), the distance from surface water resources, and groundwater yield to analyze the future drought hazard with Analytic Hierarchy Process (AHP) for determination the weighting factor. The drought period bases on standing shortage of rainfall for rice, field crops and fruit crops so the SPI were evaluated as SPI1, SPI3, and SPI6, respectively. The future drought hazard maps were showed as four drought levels: very low, low, medium, and high. The results found that SPI1 under RCP4.5 and 8.5 have a trend of drought level as low and medium level in 2020s – 2080s. For SPI3 under both RCP4.5 and 8.5, the drought level has trended to decrease both in 2050s and 2080s by compare with in 2020s, changing form high to medium and low level. For SIP6 under RCP4.5, the drought hazard level has trended to decrease severity under RCP4.5 both in 2050s and 2080s by changed from high to medium. Whereas, the drought hazard level under RCP8.5 was the high hazard level in 2050s and 2080s.

**Keywords:** *Analytic Hierarchy Process, Climate Change, Drought Hazard, Mun River Basin, SPI*