

# **Analysis of Standard Precipitation Indices to Identify for Drought Condition in 2015**

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## **ABSTRACT**

Drought is a hydro-meteorological disaster and it is a serious problem for human society and ecosystem. Gradual establishment of drought cannot be predicted with a lead time. Generally drought monitoring is done in many countries by analyzing various meteorological data and other environmental data such as rainfall, temperature, winds, soil moisture etc. Meteorological, Agricultural, Hydrological and Socio economic droughts are four categories which depends on monitoring vulnerability of different key sectors. Agricultural and Hydrological droughts are strongly related with meteorological drought whereas socio economic drought depends upon various other factors such as poor infrastructure, political reasons etc. with or without meteorological, agricultural and/or hydrological drought. Therefore, socio economic drought monitoring is not as easy as in case of the other three.

Media announced that 250,000 Civilians belongs to the 80,000 families were affected from six districts of the Northern Province of Sri Lanka due to drought conditions in 2015. Many studies suggested that there is a possibility of establishing drought conditions in Sri Lanka during southwest monsoon (May- September) in the El Nino years. 2015 is an El Nino year and there is a chance for establish drought condition. To identify possible drought conditions in 2015, monthly rainfall data were analyzed using Standard Precipitation Index (SPI). Additional information related to this study gathered from agriculture and irrigation department to monitor agricultural and hydrological drought.

Results clearly confirmed that, there was no meteorological, agricultural and hydrological drought, but there is a possibility for socio economic drought in the above mentioned areas.

## **1 Introduction**

Drought is a hydro-meteorological disaster and mainly occur due to rainfall variability. Droughts are one of the most serious problems for human societies and ecosystems. Drought conditions does not establish suddenly as the other natural hazards such as floods and storms. It gradually establish with the negative anomaly of rainfall for a required period and it is one of the most damaging types of natural disasters over long periods. Impacts from the droughts are different in different areas. The damages and the economic losses due to the flood and droughts are very high and they affect on very large number of people in each year (Wilhite 2000). Drought is the single most important climatological hazard, often aggravated by human actions. Drought may start at any time and reach varying levels of severity (Premalal 1998). Drought is described as a deficiency of precipitation over an extended period of time, which results in shortages of