

## Abstract

Variability and lowering trends in rainfall quantity and mid-season dry spells mainly attributed to the impacts of climate change have made The Gambia vulnerable to drought hazard. The lack of adequate hydrometeorological information puts the agricultural industry, which employs more than 70% of the population, at danger. Drought is generally divided into four main categories: meteorological, hydrological, agricultural and socio-economic drought. In many circumstances, all drought categories begin with a prolonged acute shortage of precipitation, followed by a lack of soil moisture, reduced water levels in streams, groundwater, and surface water in lakes and ponds. Food shortages and its complicated repercussions such as starvation, infections, instability and even death. The main aim of this study was to establish drought situation in The Gambia and propose adaptation practice that could improve the negative impact of drought hazard. The specific objectives include establishing the intensity and spatiotemporal distribution pattern; state the causes of drought, and propose adaptation measures to mitigate the impacts of drought hazard in The Gambia. Rainfall data was obtained from NASA Power-Data Access Viewer website; satellite images from USGS website, and government policy documents and research articles were analysed to determine the state of drought in The Gambia. Rainfall data, using Standardized Precipitation Index (SPI) and Precipitation Anomaly Percentage (PAP) were calculated and interpolation technique was used to determine the intensity and distribution of drought in The Gambia on yearly basis during the study period. Satellite images were processed using Vegetation Condition Index (VCI). This helps to determine drought intensity and spatial distribution on a five years interval during the study period. The findings revealed that drought exists in The Gambia at moderate levels of SPI values (0.99 to -1.49), (35% of PAP), and VCI of no extreme drought intensity more than 35%. It also revealed that the North Bank Region and north-eastern parts of the study area are the drought prone regions. The years 2000, 2002, 2011, and 2012 were the driest. This is based on SPI and PAP results. In all the indices used, 2020 records the wettest year during the study period. Recommendations of adaptation practices both on-farm and off-farm such as damming river Gambia, introducing improved seeds and drought-tolerant crops, and economic diversification were made to improve the resilience against drought in The Gambia