

**Rainfall analyses for irrigation planning and design in Southwestern Nigeria**Akinyemi Jacob<sup>†</sup>;<sup>†</sup> Olabisi Onabanjo University, Ago-Iwoye, NigeriaLeading author: [joakinyemi@yahoo.co.uk](mailto:joakinyemi@yahoo.co.uk)

The need for irrigation in any environment lies mainly in improper distribution of rainfall coupled with a global change in climate, which is hardly ideal for the growing of crops. Rainfall decreases are predicted in most areas where irrigation is presently used. These changes may occur seasonally or throughout the year, but they will mean less water available for crops and natural vegetation. Moreover, storms are expected to increase in both frequency and intensity, resulting in less water infiltrating into the soil and aquifers. In areas where storms become more frequent and rainfall decreases, some rain-fed crops may become marginal or no longer viable. Crop performance and irrigation management are directly affected not only by the monthly and annual rain volume, but also by the intensity of individual rainstorms. Even though deficiency in total volume of precipitation is a problem in some parts of Nigeria, particularly in the Sahel savannah area, the distribution of rainfall in time and space and the dependability of the rainfall are the major problems. The seasonal distribution of rainfall does not match the seasonal water requirements of plants. It is this match that irrigation technology attempts to achieve. A study was carried out using a 10-year rainfall (1991-2000) data to analyze water resource planning for irrigation design. The data were obtained from the International Institute of Tropical Agriculture, Ibadan, Southwestern Nigeria. It was observed that most of the yearly rainfall is inadequate for all year round crop production. There is need for water storage systems for irrigation planning particularly for the majority of the peasant farmers which have farm sizes of less than 5 hectares. This suggests adequate consideration of traditional farming methods, cultural constraints, socio-economic and environmental considerations must be built into irrigated agriculture that will sustain crop production. The analysis generally showed that most water deficit occurred in the months of December to March. Long-term rainfall amount and intensity are necessary information for reliable water resource planning. Keywords: Rainfall analyses, irrigation management