PREFACE

Drought is defined by various authors taking into consideration of rainfall, rainfall with mean temperature, soil, water and crop parameters climatic indices and elements of water balance. Thornthwaite (1947) defined drought taking into consideration water demand of the region and soil moisture on which the plants vitally depend for their existence shortage of moisture in the soils for crop growth is called agricultural drought. Falling of surface and sub-surface water levels and decrease in stream flow is called hydrological drought. Drought situation adversely effects the economy is called the economic drought. Drought climatology has emerged as a decipline of immense practical value and the drought climatologists have to trace the origin, development, intensity, duration, spread, frequency of occurrence and impact of drought conditions on human, physical and agricultural economy.

Water balance is a study in applied climatology deals with the water surplus and water deficit in a region. It has a practical value in assessment, utilisation and management of water and agricultural resources. It is a comparative study of rainfall and evapotranspiration.

Land evaluation includes both qualitative and quantitative land use classification to bringout land
suitable for cultivation and land not suitable for cultivation. The study of physical resources of a region is useful to evaluate land use classification and land capability. In the present study an attempt is made to study the drought climatology, water balance and optimum utilisation of land and water resources for sustainable development of land and water resources of Kurnool district.

The main objectives of the study are to analyse the rainfall characteristics and occurrence of droughts, to study the water balance elements, to evaluate the land and water resources to study the relationship between water balance and land and water resources, to assess the impact of Drought Prone Area Programmes for optimum utilisation of land and water resources of Kurnool district.

The entire thesis divided into nine chapters. The first chapter deals with introduction, study area, objectives, methodology, review of literature. The second chapter and third chapters contain the analysis of rainfall and droughts. The water balance elements are described in fourth chapter in the fifth and sixth chapters the land and water resources of the district are described. In the seventh chapter the relationship between water balance elements and land and water resources are described. In the
eighth chapter the impact of D.F.A.P. and I.R.D.P. are dealt with. The ninth chapter contains the summary and conclusions of the study.