CHAPTER X
CONCLUSION
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1. The analysis of monthly rainfall elements of Kurnool district revealed that the mean monthly precipitation is less than 10 mm in January, February and March months. The mean monthly rainfall varies from 15 mm to 40 mm in April, May, November and December months. The mean rainfall ranges from 50 mm to 100 mm in June and October months. The mean monthly rainfall has exceeded 100 mm in July, August and September months.

2. The rainfall variability is low in the months of June, July, August and September months.

3. The rainfall ratios are also low in the months of June, July, August and September months.

4. The analysis of water balance elements reveal that there is high potential evapotranspiration in the months of March, April, May, June, July and August. In these months the PE values vary from 150 mm to 200 mm. During the months of February, September and October the PE values vary from
100 mm to 150 mm. In January, November and December months the PE values vary from 75 mm to 100 mm.

5. The actual evapotranspiration (AE) or water available for transpiration is high in the months of July, August, September and October months. The AE value exceeds 100 mm in these months. The AE values vary from 50 mm to 100 mm in the months of June, November and December. It is less than 50 mm in January, February, March, April, and May months.

6. The water deficit is high in the months of March, April, and May and exceeds 100 mm. It varies from 50 mm to 100 mm in January, February, and July months. The water deficit is less than 50 mm in the October, November and December months. It is nil in the September month.

7. The water surplus is noticed in the month of September in all the stations of the district.

8. The Ima value range from 30 to 50% and July, the water deficit is less than in the August, November and December months. The WD varies from 40 mm to 100 mm in the months of January, February, June and July. It is nil in the September month. It ranges from 5 mm to 10 mm in October month. The moisture adequacy is less than 25% in March, April and May months. It varies from 25 to 50% in January, February and June months and 50 to 75% in July and August months. The Ima value exceeds 75% in October and November months and it is 100% in September months.

9. The Aridity Index is high in January, February, March, April, May and June months and exceeds 50%. It is less than 40% in the months of July, August, October, November and December. It is nil in the month of September.

10. The analysis of Moisture Index values show that in February, March, April and May months the semiarid type of climate is noticed. In January and June months both dry subhumid and semiarid types of climate are noticed. In July, August, November and December months the dry subhumid type of climate is noticed. In October month both dry subhumid and wet subhumid type of climate is noticed. In September months wet subhumid and humid types of climate are found in the Kurnool district.

11. The seasonal analysis of water balance elements reveal that during the winter and summer periods the mean rainfall is less than 75 mm. It varies from
100 mm to 200 mm during northeast monsoon period. During southwest monsoon the mean rainfall received in the district varies from 300 mm to 500 mm.

12. The seasonal analysis of potential evapotranspiration shows that during the winter period the PE varies from 150 mm to 250 mm, during the summer season it ranges from 500 mm to 600 mm, in southwest monsoon it varies from 600 mm to 700 mm and in northeast monsoon from 200 mm to 300 mm. The water loss in the form of evapotranspiration is high during summer and southwest monsoon periods.

13. The water available for transpiration that is actual evapotranspiration is less than 100 mm in winter period. It varies from 100 mm to 150 mm in summer period, 400 mm to 500 mm in southwest monsoon period and 250 mm to 300 mm during northeast monsoon period.

14. The water deficit is less than 100 mm in northeast monsoon period, 100 mm to 125 mm in winter period, 400 mm to 450 mm in summer period and 100 mm to 200 mm during southwest monsoon period.

15. Water surplus is nil in all the seasons.

16. The moisture adequacy is above 75% during northeast monsoon period, 60 to 75% during southwest monsoon period, 40 to 50% in winter period and less than 25% during summer period. The analysis of moisture adequacy shows that the southwest and northeast monsoon periods are highly favourable for crop cultivation.

17. The Moisture Index values reveal that semiarid type of climate is noticed in summer period, dry subhumid and semiarid types of climate in winter period, and dry subhumid type of climate is prevailed in southwest and northeast monsoon periods.

18. The annual water balance elements show that the annual water deficit in the district varies from 600 mm to 750 mm. Dry subhumid type of climate prevails in the entire Kurnool district.

19. The soil moisture storage is high in September month and exceeds 250 mm in all the stations of the district. In October month it varies from 200 mm to 250 mm and in November month from 150 mm to 200 mm. In the month of December it ranges from 125 mm to 150 mm. In February and March months
it varies from 30 mm to 75 mm. During the months of April, May, June, July and August the soil moisture available is less than 30 mm.

20. Soil moisture deficit is low in the month of September and is less than 30 mm. The soil moisture deficit varies from 50 mm to 150 mm in October and November months. It varies 150 mm to 250 mm during December, January and February months. The soil moisture deficit exceeds 250 mm during March, April, June, July and August months.

21. Soil moisture adequacy is 90% during September month. It varies from 50 to 80% during October, and November and 30 to 50% in December and January months. The soil moisture adequacy is less than 300% during the months of February, March, April, May, June, July, and August.

22. Soil moisture Aridity is low in the month of September. It varies 20 to 50% during October and November months. The soil moisture Aridity ranges from 50 to 80% in December, January, and February months. It exceeds 80% in March, April, May, June, July and August months.

23. The analysis of soil moisture elements reveal that the months of September, October, November and December are highly favourable for cultivation. During other months crops could be cultivated by supplementing with irrigation.

24. The seasonal analysis of soil moisture availability shows that during northeast monsoon period there is high soil moisture availability followed by winter, and southwest monsoon. During summer periods the soil moisture availability is low.

25. The soil moisture deficit is low in northeast monsoon period, moderate in winter and southwest monsoon periods and high during summer period.

26. The soil moisture adequacy values reveal that during northeast monsoon period the crop cultivation is highly favourable.

27. The soil moisture Aridity values reveal that the soil moisture shortage is low in northeast monsoon period and high during winter, summer and southwest monsoon periods.

28. The number of water availability days during wet and dry period vary from 184 to 215 days. The 184 days are found in Kurnool, Koilakuntla, Allagadda, Dhone and Yemmiganuru stations. The number of water availability days of
214 are found in Nandyal, Atmakur, Nandikotkuru and Aluru stations. In Pathikonda and Adoni stations the number of water availability days in wet and humid periods are 215.

29. From the study of water availability calendar it is found that in Nandikotkuru, Atmakur, Nandyal, Dhone, Pathikonda and Adoni stations the wet periods prevail for seven months from June to December and July to January without any break. In Kurnool, Koilakuntla, Allagadda, Dhone and Yemmiganur stations the humid and wet periods vary from July to December.

30. The land use analysis of the Kurnool district reveal that land under forest cover is about 18.08%, barren and uncultivable waste land is about 5.65%, land put to non-agricultural uses is about 5.73%, permanent pastures is about 0.23%, land under miscellaneous trees and grooves is about 0.12%, cultivable waste lands is about 4.65%, Other follows is about 8.11%, current fallows is about 5.77%, and net sown area is about 51.66% of the total geographical area of the district.

31. The spatial analysis of land under different uses during 1990-91 revealed that land under forest cover is high in eastern mandals around Nallamalla and Erramalla hills, barren in central and northeastern mandals, land put to non agricultural use in northern mandals, and permanent pastures in a few central and eastern mandals. Culturable waste lands concentration is high in southern and central mandals, current fallows in western, northeastern and southeastern mandals and net sown area concentration is high in western, northern and southern mandals of the district.

32. The land efficiency during the year 1985-86 varies from 2% to 70%. It exceeds 50% in ten mandals, 30% to 50% in twenty five mandals and in nineteen mandals it is less than 30%. During the year 1990-91 the land use efficiency varies from 4% to 74%. It exceeds 50% in eight mandals. The relative increase or decrease in land use efficiency shows that there is relative increase in land use efficiency in about thirty-one mandals and relative decrease in twenty three mandals of the district.

32. The analysis of irrigation shows that about 141,435 hectares of land is present as registered ayacut area under major irrigation projects, 11,688 hectares under medium irrigation projects and 33,015 hectares under minor irrigation projects. The total ayacut area under different irrigation sources is about
186,138 hectares of land and accounts for 10.54% of the total geographical area of the district.

34. The canal irrigated area accounts for 55.67% of the total irrigated area of the district and the concentration is high in western and a few mandals in the eastern parts of the district. The tank irrigation accounts for 9.14% of the total irrigated area. The well irrigation accounts for 25.56% and its concentration is high in the district. The other sources irrigated area accounts to 5.11% of the total irrigated area and its concentration is high in northwestern and in a few mandals in central, southern and eastern parts of the district. The net area irrigated accounts for 10.63% of the total area of the district and the concentration is high in western, northwestern, southwestern and a few mandals in the eastern parts of the district.

35. The intensity of irrigation is high in a few mandals in 1985-86 and 1990-91. The irrigation efficiency is also high in few mandals varying from 4 to 7 in 1985-86 and 1990-91. There is relative increase in irrigation efficiency in about 42 mandals from 1985-86 to 1990-91.

36. The spatial distribution of concentration of selected crops during 1990-91 revealed that the concentration of rice is high in northwestern, eastern, northeastern and southeastern mandals where there is assured water supply through canal or tank or well irrigation and accounts for 8.86% of the total cropped area of the district. The concentration of Jowar is high in western, southwestern, northern, northeastern and southeastern mandals and a major part of its is cultivated in rabi season. Bajra concentration is high in western and central mandals of the district and korra concentration is high in western, central and southern mandals of the district.

37. The sunflower concentration is found high in western, and northwestern mandals and redgram concentration is noticed high in southern, southeastern and northeastern mandals of the district. The concentration of cotton is high in the eastern mandals and the groundnut is found in southern and central mandals. Groundnut accounts for 33.55% of the total cropped area. Tobacco concentration of is high in northern and southern mandals of the district. The concentration of fruits and vegetables crop is high in western, northern, eastern and southeastern mandals of the district.
38. The relative increase or decrease in selected crops from 1985-86 to 1990-91 reveal that there is relative increase in cultivation of rice, groundnut, redgram and fruits and vegetables and relative decrease in bajra, tobacco and cotton crops. There is a relative increase in about fifty mandals in cultivation of sunflower crop in the district.

39. The intensity of cropping pattern during 1985-86 is found high in fifteen mandals and the value exceeds 100%. During 1990-91 the intensity of cropping pattern exceeds 100% in twenty nine mandals. The relative increase or decrease in intensity of cropping pattern shows a relative increase in about thirty six mandals.

40. The crop diversification index during 1985-86 exceeds 20% is fourteen mandals and during 1990-91 it exceeds 20% in thirteen mandals. The relative increase or decrease in crop diversification index from 1985-86 to 1990-91 reveals that there a relative increase is about twenty three mandals and relative decrease in noticed in thirty mandals of the Kurnool district.

41. The first ranking crops in the Kurnool district during 1990-91 are groundnut, jowar, paddy, sunflower and cotton.

42. The analysis of crop combinations by Doi’s, Thomas and Coppock methods reveal that in the central parts of the district monocropped area is noticed. Two crop combinations are found in a few mandals of northeastern, southern, southeastern and southwestern parts of the district. Three crop combinations are found in a few eastern mandals. Four crop combinations are noticed in northern and western mandals of the district and five crop combinations are found in southwestern and in a few mandals scattered over the district.

43. During 1985-86 the agricultural productivity is high in eight mandals of the district and exceeds Rs. 800/- hectare. The agricultural productivity exceeding Rs. 2,000/- hectare during 1990-91 is found in four mandals. They are Dhone, Krishnagiri, Peapully and Pathikonda mandals. The relative increase or decrease in agricultural productivity from 1985-86 to 1990-91 shows that there is over all increase of agricultural productivity in all the mandals of the Kurnool district except in Holagunda mandal due to increase in prices and also increase in overall yield and production of various crops.
44. The level of agricultural development during 1985-86 is found high in nine mandals. They are Kurnool, Pamulapadu, Nandyal, Mahanandi, Sirivel, Gospadu, Banganpalli, Adoni and Yemmiganur mandals. In about thirty one mandals the agricultural development is moderate and low in fourteen mandals of the district.

45. The level of agricultural development during 1990-91 is found high in fourteen mandals. They are Kurnool, Peapully, Dhone, Atmakur, Pamulapadu, Nandyal, Mahanandi, Sirivel, Banganapalli, Adoni, Kowthalam, Yemmiganur and Gonegandla mandals. In about twenty six mandals the level of agricultural development is moderate and low in fourteen mandals of the Kurnool district. The relative increase or decrease from 1985-86 to 1990-91 in the level of agricultural development reveals that there is a relative increase in the level of agricultural development in about twenty nine mandals and a relative decrease in sixteen mandals of the district.