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A Study of Irrigation Pattern in Nanded District of Maharashtra State

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Abstract:

The present study has aimed to explain the Irrigation patterns of Nanded district during 1984-85 to 2009-10. Irrigation is an artificial supply of water to land for growing crops and to increase the per hector yield. Irrigation is necessary particularly in and uncertain rainfall areas. It is essential and artificial application of water to overcome the deficiencies in rainfall for growing crops (Contour 1967). Irrigation plays a vital role in meeting rising demands of food and fodder for growing human diestock population; moreover it is an age old practice of ancient civilization design to reduce moisture deficiency. Investment in irrigation leads to multiple benefits such as it enables farmer to harvest two or three crops a year. It is in this contest that the present study of irrigation and its impact on cultivated area in Nanded district of Maharashtra is under taken.

Key words: Irrigation pattern, crops, rainfall, cultivation

Introduction:

The present study has aimed to explain the Irrigation patterns and spatio -temporal changes Irrigation in Nanded district. Agricultural is one of the most important occupations of the study area. Nearly 78.13% of working population is directly engaged in agricultural activities. The Economy of the study region mainly depends on agricultural. The modern agricultural implements is improved or hybrids seeds use of different pesticides, insecticides. Weed sides, fungicides and irrigation facilities have increase agricultural production of the study region. Agriculture is more prosperous in the areas of various river basin i.e Godavari, Manjara, Manyad, Sarswati Penganga, Asana, Sita, and lendi etc. Irrigation being artery and pulsing heart is an absolute, constant as well as a sufficient command over the location of commercial crops important in agricultural production per hectare, showing in the cropping pattern change in the technique in the land use of a region since many decades.

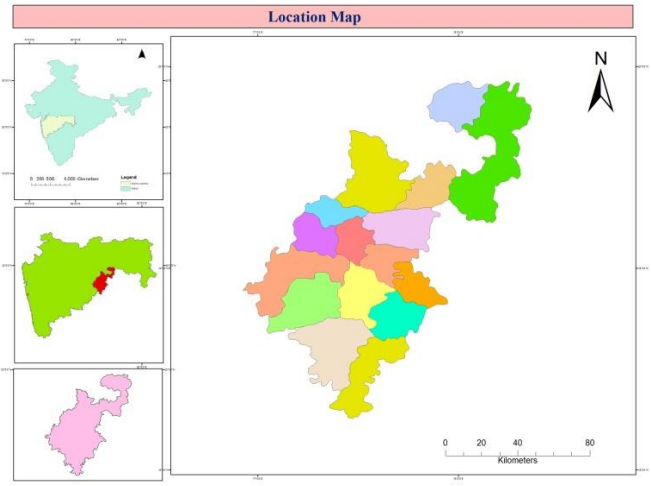
Objectives:

1) To analyze the Irrigation patterns in Nanded district.
2) To find the Sources of Irrigation in Nanded district.
3) To calculate the change occur in irrigation from 1984 to 2010

Study Area:

Nanded district is part of Marathwada Region in Maharashtra. For the present study in and around area of Nanded district is selected. Nanded district is situated on the bank of Godavari River. Nanded district has a Geographical area of 10,5,28 Sq. Km. which forms 3.41% of the total Geographical area of Maharashtra State. The district is situated in the Deccan Plateau. The district of Nanded has between 18°.15' and 19°.55'

North latitude and 77°.7' to 78°.15' East longitudes. The total population of the districts was 33, 56,566 persons according to 2011 census.



Data Base and Methodology:

The present study is based on secondary data collected from census Reports of Government of India. Agriculture Departments of Zillah Perished, Agriculture office of Nanded district. The District Gazetteer of Nanded 1971. Socio-Economic Review and District Statistical Abstracts of Nanded district 1985, 1999, 2001, 2006, 2010. Various Agricultural bulletins, periodicals, Newspaper, Journals. The extensive fieldwork was under taken for investigation of irrigation and degradation of soils.

For detailed study of Irrigation patterns of Nanded District. The collected data has been processed and analysed by using different quantitative, statistical technique. The tabulated data has been presented by Maps using GIS. To make the comparative analysis of Irrigation patterns in Nanded district. Following statistical formula used for change detection in different elements of our study

$$\text{Change} = \frac{\text{Current Year} - \text{Base Year}}{\text{Base Year}} \times 100$$

Sources of Irrigation:

1) Well Irrigation 2) Surface Water Irrigation 3) Other sources of irrigation

WELL IRRIGATION:

Table 1: Well Irrigation pattern of Nanded District

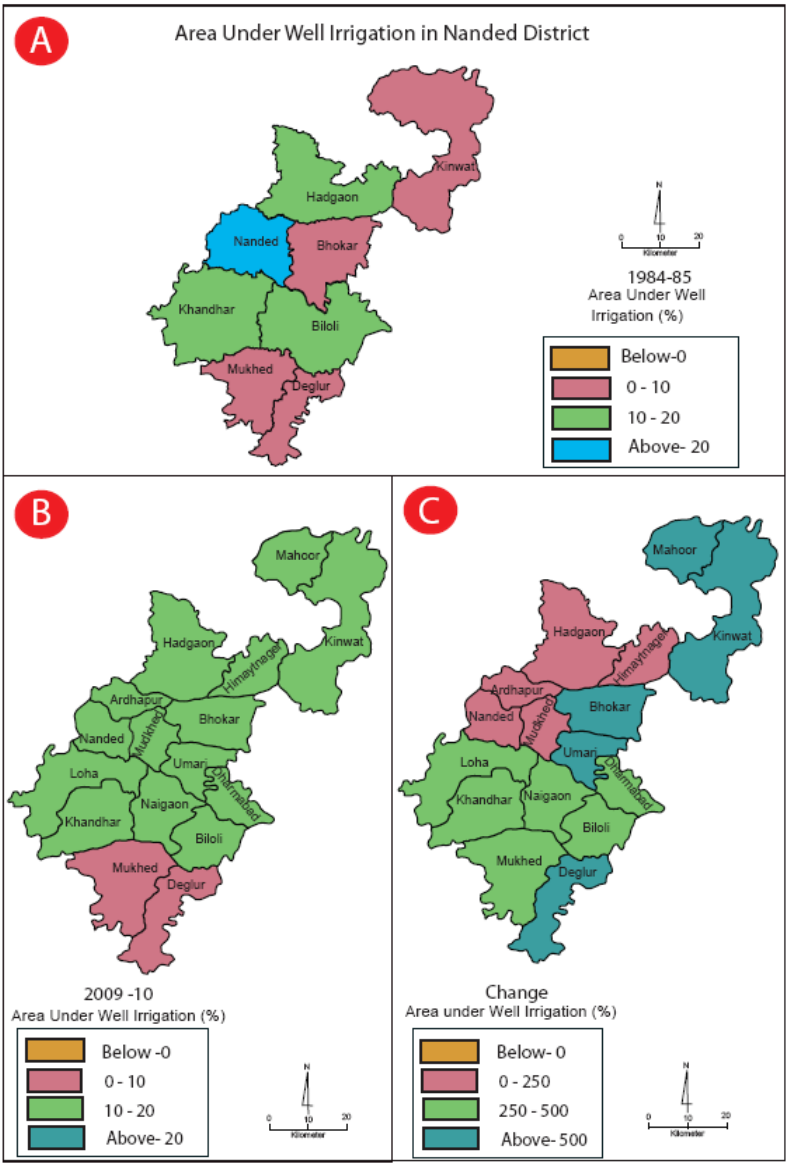
Sr. No.	Tahsil	1984-85 (Area in Hector)	Percent	2009-10 (Area in Hector)	Percent	Change	Change in %
1	**Nanded**	4222	36.51	6021	12.96	0.4261	42.61
2	Ardhapur						
3	Mudkhed						
4	**Hadgao**	2245	19.41	6799	14.64	2.0285	202.85
5	Himaytnagar						
6	**Kinwat**	350	3.03	5965	12.84	16.0428	1604.28
7	Mahur						
8	**Bhokar**	523	4.52	6335	13.64	11.1128	1111.28
9	Umri						
10	**Biloli,**	1171	10.13	6931	14.92	4.9188	491.88
11	Naigaon						
12	Dharmabad						
13	**Kandhar**	1848	15.98	7157	15.41	2.8728	287.28
14	Loha						
15	**Mukhed**	961	8.31	4261	9.17	3.4339	343.39
16	**Degloor**	245	2.12	2982	6.42	11.1714	1117.14
Total		**11565**	**100**	**46451**	**100**	**3.0165**	**301.65**

Source: Socio-economic abstract of Nanded districts 1985 and 2010

Well irrigation is very useful and traditional practice in Nanded districts. From the ancient time these method was widely used. The well irrigation pattern in Nanded district in year 1984-85 is 11,565 hector. It is drastically 4th time increased in year 2009-10 i.e. 46,451 hector. Well irrigation is dominant in Nanded tahsil in the year 1984-85 (36.51%), but it is less increase in year 2009-10 (12.96%) as compare to other all tahsil.

Degloor has comparative less hectors of land under well irrigation. According to the year 1984-85 statistics well irrigation it was more in every region of study region. In some areas it was less but now days it is showing increasing trend.

Fig. 1: Well Irrigation pattern of Nanded District (A-1984-85, B- 2009-10, C- Change)



SURFACE WATER IRRIGATION:

Table 2: Surface Water Irrigation pattern of Nanded District (Area in Hectors)

Sr. No.	Taluka	Area in Hector 1984-85	Percent	Area in Hector 2009-10	Percent	Change	Change in %
1	**Nanded**	8456	37.51	2279	12.36	-0.7304	-73.04
2	Ardhapur						
3	Mudkhed						
4	**Hadgao**	1944	8.62	2826	15.32	0.4537	45.37
5	Himaytnagar						
6	**Kinwat**	6691	29.68	2408	13.06	-0.6401	-64.01
7	Mahur						
8	**Bhokar**	1308	5.80	2298	12.46	0.7568	75.68
9	Umri						
10	**Biloli,**	1708	7.58	2873	15.58	0.6850	68.50
11	Naigaon						
12	Dharmabad						
13	**Kandhar**	414	1.84	2676	14.51	5.4637	546.37
14	Loha						
15	**Mukhed**	718	3.18	1801	9.77	1.5083	150.83
16	**Degloor**	1306	5.79	1280	6.94	-0.0750	-7.50
Total		**22545**	**100**	**18441**	**100**	**-0.1820**	**-18.20**

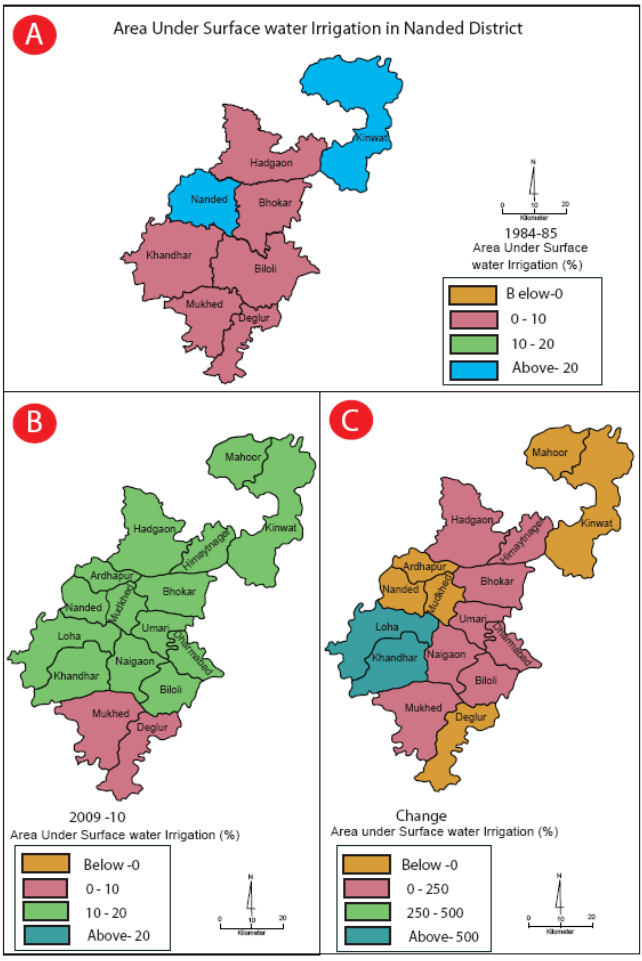
Source: Socio-economic abstract of Nanded districts 1985 and 2010

Surface water irrigation is very useful and traditional practice in Nanded districts because of the Godavari River. During the year 1984–85 there was very less hector of land under surface water irrigation. There was drastic change in this irrigation pattern in the year 2009-10. There is reduction in area under well irrigation in Nanded, Kinwat and Degloor taluka because of other sources of irrigation like canal built in the year 2009-10.

The surface water irrigation pattern in Nanded district in year 1984-85 is 22545 hector. It is drastically decreased in year 2009-10 i.e. 18441 hector. Surface water irrigation is dominant in Kandhar taluka in the year 1984-85 (1.84%), but it is drastically increased in year 2009-10 (14.51%) as compare to

other taluka. Kandhar taluka has comparative less hectors of land under surface water irrigation in the year 1984-85. Degloor taluka has comparative less hectors of land under surface water irrigation in the year 2009-10. According to the year 1984-85 statistics surface water irrigation it was more in every region of study region. In some areas it was less but now days it is showing increasing trend.

Fig. 2: Surface Water Irrigation pattern of Nanded District (A- 1984-85, B- 2009-10, C- Change)



OTHER SOURCES OF IRRIGATION:

Table 3: Other Sources of Irrigation pattern of Nanded District (Area in Hectors)

Sr. No.	Taluka	Area in Hector 1984-85	Percent	Area in Hector 2009-10	Percent	Change	Change in %
1	**Nanded**	5367	20.08	3640	16.03	-0.3089	-30.89
2	Ardhapur						
3	Mudkhed						
4	**Hadgao**	1614	6.15	3845	16.93	1.3816	138.16
5	Himaytnagar						
6	**Kinwat**	305	1.16	3472	15.29	10.3836	1038.36
7	Mahur						
8	**Bhokar**	605	2.31	3497	15.40	4.7801	478.01
9	Umri						
10	**Biloli,**	16953	64.62	2341	10.31	-0.8619	-86.19
11	Naigaon						
12	Dharmabad						
13	**Kandhar**	204	0.78	2837	12.49	12.9068	1290.68
14	Loha						
15	**Mukhed**	894	3.41	1278	5.63	0.4279	42.79
16	**Degloor**	392	1.49	1798	7.92	3.5867	358.67
Total		**26235**	**100**	**22708**	**100**	**-0.1344**	**-13.44**

Source: Socio-economic abstract of Nanded districts 1985 and 2010

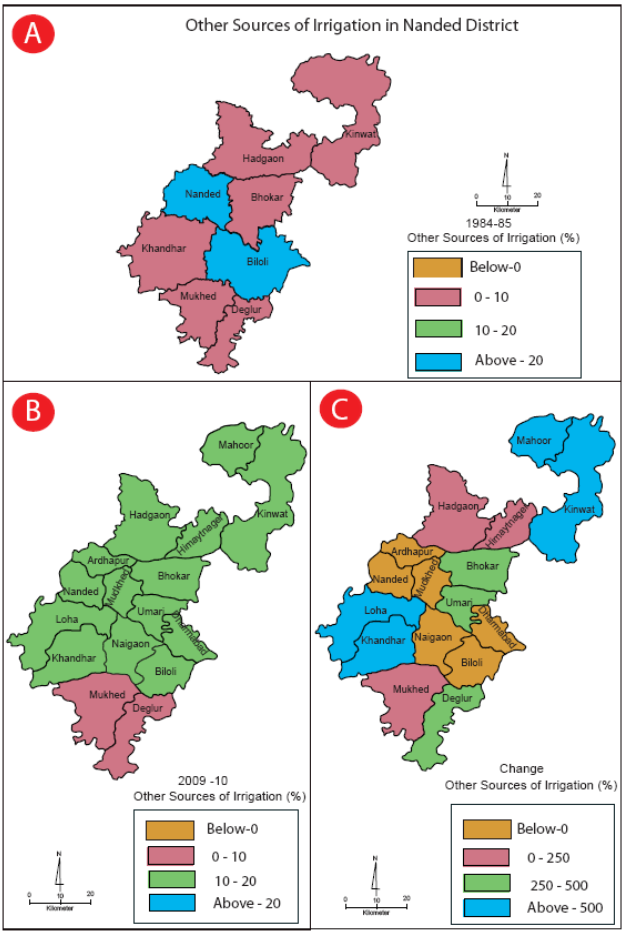
Other sources of irrigation consist Rainfall and moisture in the area in the study area where there is no chance to gate water from canal or lift irrigation and also well are not possible in such area, rain is the one and only one source of irrigation these area can be bring under lift irrigation. Other sources of irrigation are very useful in the rain fed areas in Nanded district.

During the year 1984–85 there was more hector of land under other source of irrigation. There is reduction in area under other source of irrigation in Nanded and Biloli taluka because of urbanization and change in irrigated land to other purpose in the year 2009-10.

The other source of irrigation pattern in Nanded district in year 1984-85 is 26235 hector. It is decreased in year 2009-10 i.e. 22708 hector. Other source of irrigation is dominant in

Kandhar taluka in the year 1984-85 (0.78%), but it is drastically increased in year 2009-10 (12.49%) as compare to other taluka. Kandhar taluka has comparative less hectors of land under surface water irrigation in the year 1984-85. Mukhed taluka has comparative less hectors of land under surface water irrigation in the year 2009-10. According to the year 1984-85 statistics other source of irrigation it was more in every region of study region. In some areas it was less but now days it is showing increasing trend.

Fig. 3 Other Sources of Irrigation pattern of Nanded District (A-1984-85, B- 2009-10, C- Change)



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