



Spatial – Temporal Analysis of Well Irrigation Pattern in Jalna District

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Abstract -Irrigation is one of the inputs, which has dominant impact on cropping pattern. Irrigation acts as an agent in the process of speedy dynamism in cropping pattern. The cropping pattern denotes the raising of crops in a particular set of time. It is a dynamic phenomenon which changes according to the adaptation of new technology' Well irrigation has been a traditional source of irrigation in the past and has been used for a very long time. Depending upon the climate and soil conditions, efforts were made for digging wells vary in different regions of the state of Maharashtra with varying success to tap enough quantities of water and the desired composition for being useful to agriculture Crops

Keywords – *Well Irrigation, Temporal changes,*

Introduction-

The wells are generally circular with a diameter of 3 to 4 Meter and depth of 6 to 14 Meter. It is dug in the ground to tap the ground water especially, where the surface water scanty. Well irrigation is an indigenous method, largely suitable for individual farmer where in water is lifted by a 'Mot' (a leather an iron container used to lift the water form well) worked out by a pair of bullocks. Now a days these 'Mots' are replaced by oil engines and electric motor pumps. As there is no steady water table, the tube wells are neither successfully nor economically feasible in the region

OBJECTIVE OF THE STUDY

1. To Study variation in Wells Distribution of Jalna District from 2000-2015.
2. To examine the factors responsible for spatio-temporal changes of well irrigation in the study region.

Database and Methodology

The present study is based on the secondary data, for the period 2001 and 2015 data has been derived from the socio-economic review of the Jalna district. Census of Maharashtra and District census handbook (1901 to 2011) . Socio-economic abstract, Census of Maharashtra, Records of Zilla Parishad, District Statistical report . District Gazetteers.

Study Area :-

Jalna district is situated at the central part of the Maharashtra state of Republic of India and northern direction of Marathwada region specially district lies between 19⁰¹' North to 21⁰³' North latitudes and 75⁰⁴' East to 76⁰⁴' East Longitude. Jalna district erstwhile a part of Aurangabad district was formed on 1st May, 1981 by carving out Jalna, Bhokardan, Jafrabad and Ambad tahsil of Aurangabad district and Partur tahsil of Parbhani district. The boundaries of Jalna are adjacent to Parbhani and Buldhana on east, Aurangabad on west, Jalgaon on north and Beed on South. Jalna district covers an area of 7,612 sq.km which is 2.47 percent of the total state area. It has population of 16.12 lakh as per 2001 census. Recently Jalna district is divided into eight tahsil for administrations these are Jalna, Ambad, Bhokardan, Jafrabad, Badnapur, Partur, Mantha and Ghansawngi.

Table No-1.1

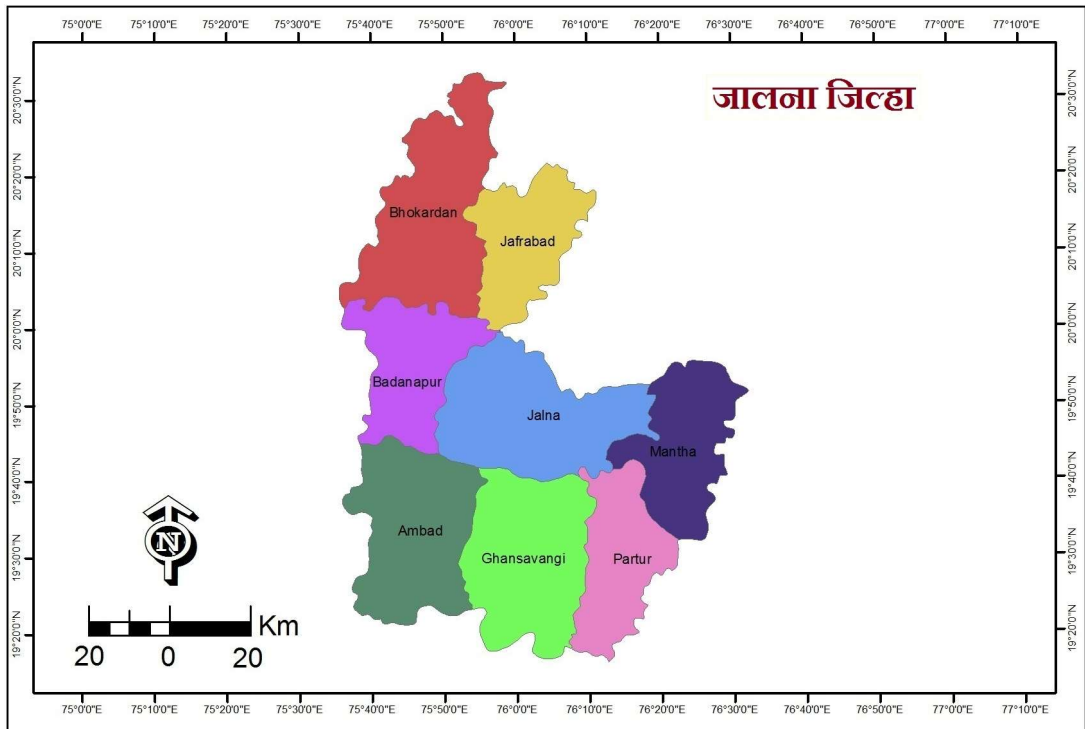
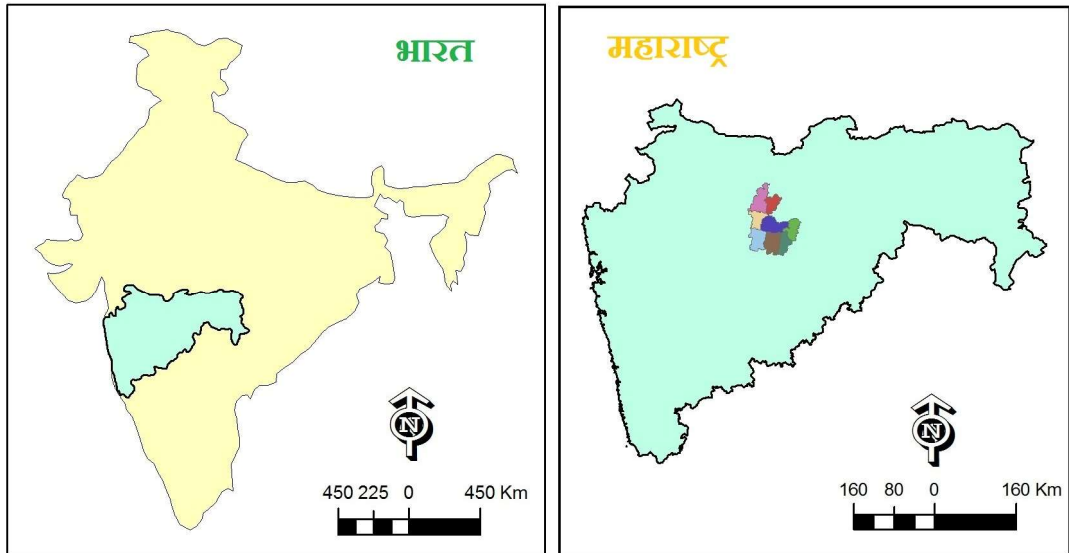
Irrigated area under well irrigation (Area in Hectare)

Sr. N.	Tahsil	2001			2015			Change in Wells
		Total Well	Area Under Well Irrigation (Hectare)	Area Under Well Irrigation (Percentage)	Total Well	Area Under Well Irrigation (Hectare)	Area Under Well Irrigation (Percentage)	
01	Jalna	9711	12591	23.02	11197	18808	25.65	2.63
02	Ambad	5924	10257	18.75	6417	13201	17.73	-1.02
03	Ghansawangi	3189	5336	9.76	3686	7640	10.26	0.50
04	Partur	4266	7664	14.01	4677	9116	12.24	-1.77
05	Mantha	970	1649	3.01	1343	3016	4.05	1.04
06	Bhokaradan	3652	6051	11.06	4168	9371	12.58	1.52
07	Jafrabad	2454	4588	8.39	3170	6985	9.38	0.99
08	Badnapur	3141	6561	12.00	3606	6332	8.50	-3.50
Total		33307	54697	100	38264	74469	100	

Source-Socio-Economic Abstract 2001-2015

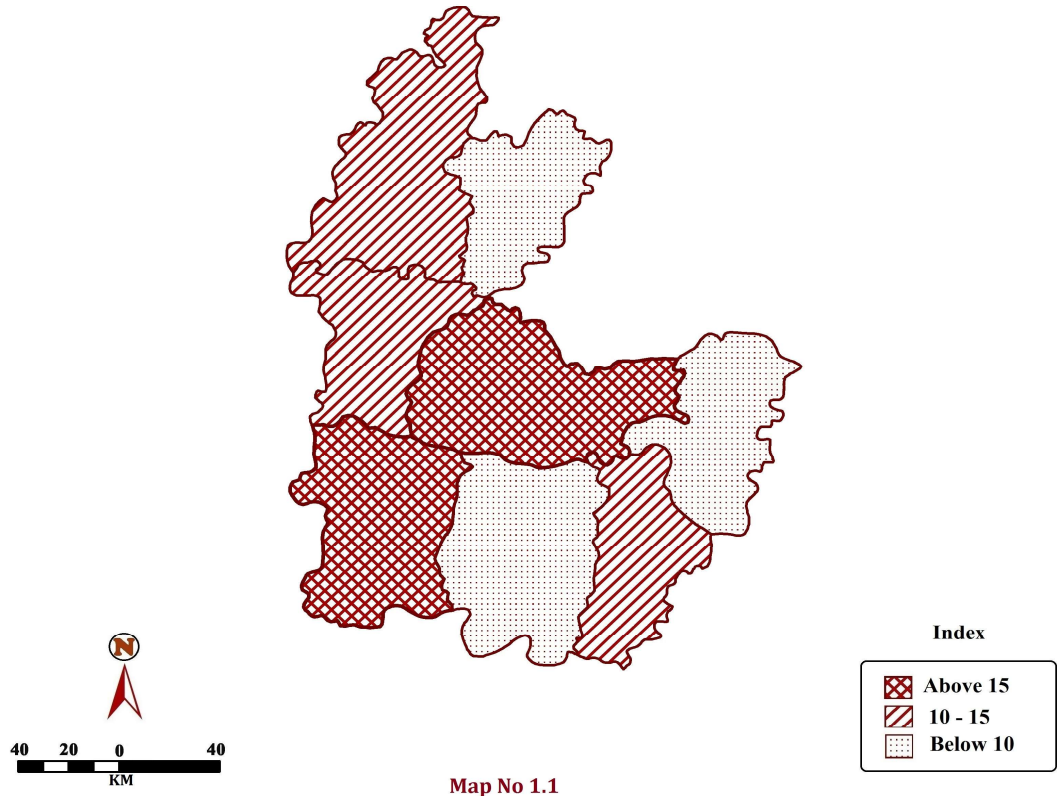


Study Region Location Map

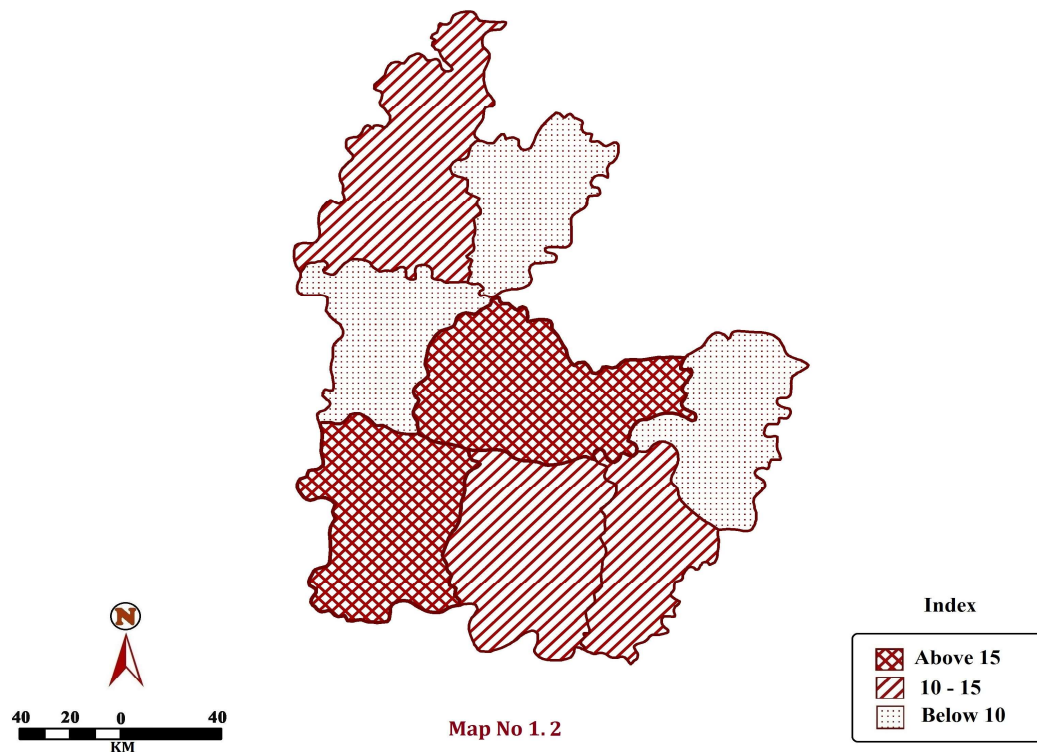


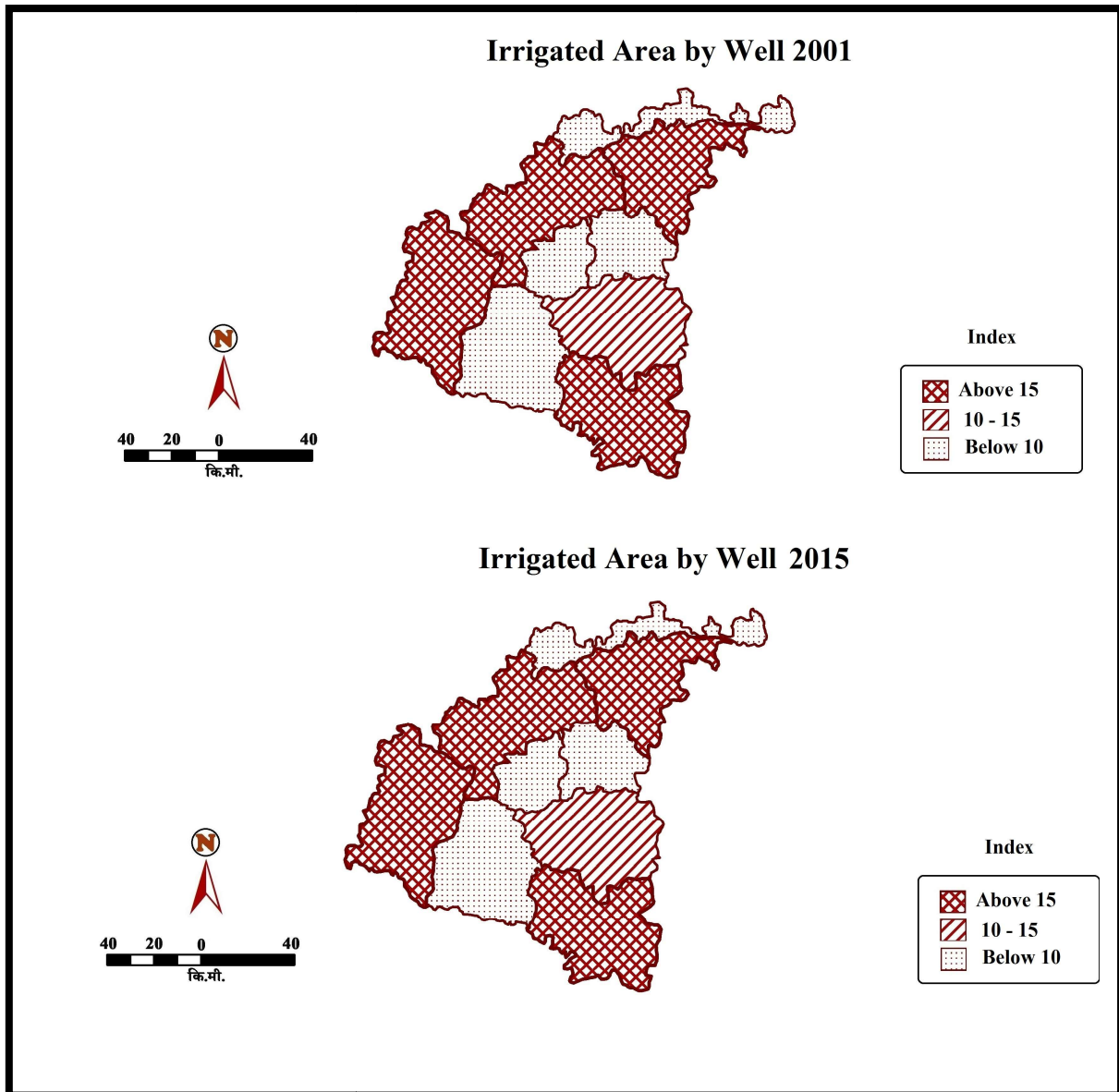


Irrigated Area by Well 2001



Irrigated Area by Well 2015





Density of Wells

Area under well irrigation in Jalna district In general the physical setting of the well is governed by the surface topography by the behaviour of groundwater. In the year 2001 there are about 33307 wells in the district and 54697 hector area is irrigated by these wells. In the next decade the number of well increase In the district which is 38264 and 74469 hectare area is irrigated by this well.

Pattern of Temporal change

Table number 1.1 shows that there is also temporal changes in well irrigation in the Jalna district highest positive change has seen in Jalna tahsil 2.63, Bhokardan Tahsil 1.52,



Mantha 1.04, Jafrabad 0.99, Ghansawangi 0.50 and rest all Badnapur -3.50, Partur - 1.77, Ambad -1.02 Shows the negative temporal change in the study region.

Conclusion

Relatively high concentration in the year 2001 (more than 15 wells per 1000 hectare) of Wells is observed in the Jalna and Ambad tahsils, where as moderate concentration of wells i.e. 10 to 15 wells per 1000 hectares is observed in Partur, Bhokaradan, Badnapur tahsil. The tahsil viz. Ghansawangi, Mantha, Jafrabad has very low density of wells which records below 10 wells per 1000 hectare area. In the next decade high concentration in the year 2015 (more than 15 wells per 1000 hectare) of Wells is observed in the Jalna, Ambad tahsil, where as moderate concentration of wells i.e. 10 to 15 wells per 1000 hectares is observed in Bhokaradan, Partur, Ghansawangi tahsil. The rest tahsil viz. Badnapur, Jafrabad, Mantha has very low density of wells which records below 10 wells per 1000 hectare area.

REFERENCES:

1. Andreae, B. (1975): The Types of Irrigation Farming, Applied Science and Development, Vol. 6, pp. 77-93.
2. Arora, R. C. (1976): Development of Agriculture and Applied Sectors, S. Chand Publishing, New Delhi, pp. 17-36.
3. Bansil, P. C. (1977): Agricultural Problems in India, Vikas Publication, New Delhi.
4. Bansode, R. B. (1997): Lift irrigation and problem associated with it in Karveer tahsil: A geographical analysis, unpublished M. Phil. Dissertation, Kolhapur p. 51-52.
5. Cantor, Leonard M. (1967): A World Geography of Irrigation, Oliver and Boyd, London, pp. 29. Darra, B. L. and Raghuvanshi, C. S