Vol 6 Issue 1 July 2016

ISSN No :2231-5063

International Multidisciplinary Research Journal

Golden Research Thoughts

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RNI MAHMUL/2011/38595 **ISSN No.2231-5063**

Golden Research Thoughts Journal is a multidisciplinary research journal, published monthly in English, Hindi & Marathi Language. All research papers submitted to the journal will be double - blind peer reviewed referred by members of the editorial board.Readers will include investigator in universities, research institutes government and industry with research interest in the general subjects.

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ISSN: 2231-5063 Impact Factor : 4.6052(UIF) Volume - 6 | Issue - 1 | July - 2016

Golden Research Thoughts
International Recognition Multidisciplinary Research Journal
RNI : MAHMUL/2011/38887
ISSN No: 2231-5063
Impact Factor 2.2052 (UIF) [Yr. 2014]
3.4052 (UIF) [Yr. 2015]
4.6052 (UIF) [Yr. 2016]

GRT Golden Research Thoughts

GEOGRAPHICAL STUDY OF DEMOGRAPHIC FORCES IN AGRICULTURE: A CASE STUDY OF JALGAON DISTRICT.

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ABSTRACT

The position in regard to the human factor in Indian agriculture is indeed very depressing. From the point of view of efficient conduct of agriculture, the so-called agriculturist is anything but agriculturist. Hamstrung by the vicious atmosphere of caste and religion, the clutches of moneylender, lack of any organization, particularly of poor farmers etc. an overwhelming numbers of cultivators are just subsistence farmers. They have only the dirty past and the wretched present. For them there is no future, much less a bright future. Add to these miserably existing human beings the rapid additions being made every minute and the picture of low living of these people at sub-human level becomes obvious. There is not enough for them even to exist. Under such a situation it is impossible for them to think of surpluses for investment in agriculture. The land is thus being squeezed more and more with no or little recompense for the exhausted land. No wonder then that land is yielding less and less (A.N. Agrawal , 1978)

Keeping this view in mind researcher attempted to study the demographic aspects in agriculture of Jalgaon district. Here workers, cultivators, agricultural labourers and non-workers as demographic force play a decisive role to determine the agricultural economy of the district. The pressure of population of above mentioned on the cultivated land in the district can be analyzed by numerous ways.

KEYWORDS :*Demographic forces, subsistence,*

AIM AND OBJECTIVES:

Jalgaon dstrict has more or less agrarian economy based on human efforts rather than mechanization of agriculture. Most of the operations in the agriculture are done by human beings. It creates a great impact on demographic structure in agriculture. Keeping this view in mind, main aim of this paper is to study the demographic forces of agriculture in Jalgaon district. The objectives of the study are as follow;

1.To study the spatial study of working and non workng population of the district.
2.To study spatial structure of population engaged in agriculture.
3. To identify the impact of agricultural population on agriculture of the district.

DATA SOURCE:

The spatal analysis is based purely on secondary data. It covers all published materials and unpublished records which were preserved in the department of land revenue. The tahsil office was the prime source for area under various crops during different period. Besides this, the published records like Socio-economic abstract of Jalgaon district, District Census Hand book, District statistical report of Jalgaon district, Season and Crop reports, Jalgaon district Gazetteer of different periods.

METHODOLOGY:

The analysis has involved with the help of suitable descriptive and cartographic techniques. Sundry maps, diagrams, graphs and other illustrations have prepared at different levels and scales to elucidate variety of geographic aspects and even analysis with some preference given to quantitative and qualitative maps especially those employing isopleths and chloropleth techniques.

Maps and graphs were prepared with the help of ARC GIS and Microsoft EXCEL respectively. Shape file for the base map were made available from Survey of India, Dehradun. All raw data were converted into required percentage form through Microsoft Excel and the then .xls format converted into DBF format. DBF files directly attached to attribute table through the process of Joining in ARC GIS.

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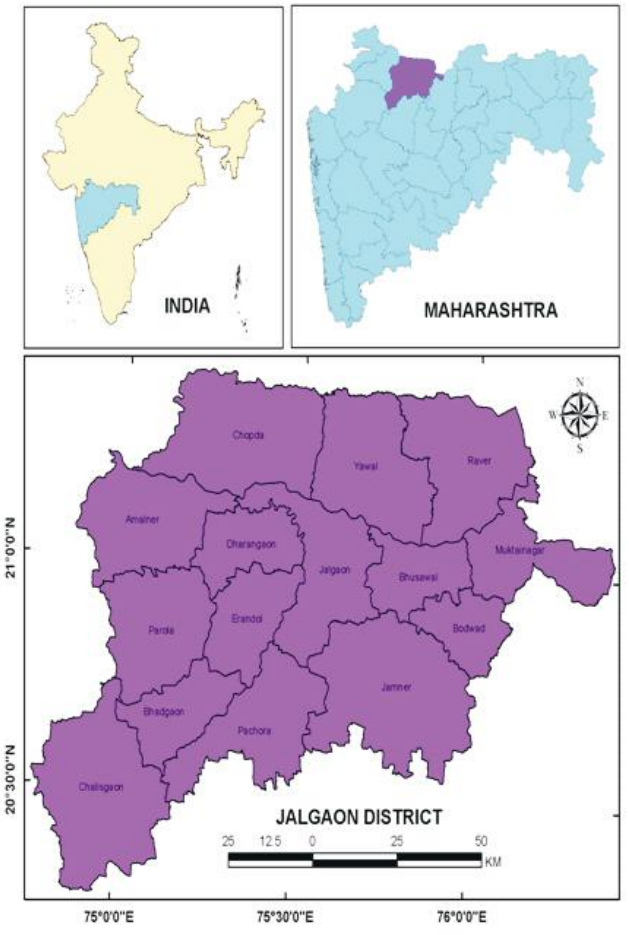
AREA UNDER STUDY:



DEMOGRAPHIC FORCES IN AGRICULTURE

The position in regard to the human factor in Indian agriculture is indeed very depressing. From the point of view of efficient conduct of agriculture, the so-called agriculturist is anything but agriculturist. Hamstrung by the vicious atmosphere of caste and religion, the clutches of moneylender, lack of any organization, particularly of poor farmers etc. an overwhelming numbers of cultivators are just subsistence farmers. They have only the dirty past and the wretched present. For them there is no future, much less a bright future. Add to these miserably existing human beings the rapid addictions being made every minute and the picture of low living of these people at sub-human level becomes obvious. There is not enough for them even to exist. Under such a situation, it is impossible for them to think of surpluses for investment in agriculture. The land is thus being squeezed more and more with no or little recompense for the exhausted land. No wonder then that land is yielding less and less (A.N. Agrawal , 1978) every year.

Keeping this view in mind researcher attempted to study the demographic aspects in agriculture of Jalgaon district. Here workers, cultivators, agricultural labourers and non-workers as demographic force play a decisive role to determine the agricultural economy of the district. The pressure of population of the above mentioned on the cultivated land in the district can be analyzed by

numerous ways. The following analysis is made.

(A) Workers per 100 hectare of cultivated land :

A worker per 100 hectare of cultivated land is one of the important demographic aspect of population of the district. Jalgaon district as a whole possessed 166 workers per 100 hectare of cultivated land in 2001 as compared to 97 in 1961.

Table No 5.17
Workers per 100 hectare of cultivated land in Jalgaon District
(1961 -2001)

TALUKA	1961	1971	1981	1991	2001	Change
Chopda	86	82	113	138	154	67
Yawal	111	98	121	164	151	41
Raver	120	106	132	148	170	50
Amalner	94	82	101	135	145	51
Erondol	95	84	115	141	159	63
Jalgaon	120	121	159	213	283	163
Bhusawal	127	125	157	186	206	79
Muktainagar	92	82	213	134	162	70
Parola	73	58	73	113	170	97
Bhadgaon	85	74	108	125	137	52
Pachora	91	82	105	136	143	52
Jamner	87	73	90	110	129	42
Chalisgaon	83	73	95	140	145	62
Total	**97**	**88**	**122**	**145**	**166**	**68**

Source : Compiled by Author

The above table shows the distribution of workers per 100 hectare of cultivated land in Jalgaon district since 1961 to 2001.The higher numbers of workers per 100 hectare of cultivated land indicated the availability of working hands for agricultural operations. Among the tahsils the number of workers available per 100 hectare of cultivated land varies within the range of 73 to 127 in 1961 and 129 to 283 in 2001.

The spatial distribution of workers per 100 hectare of cultivated land is shown by Map No 5.25 in 1961. The highest number of workers was available in Bhusawal taluka (127) whereas the lowest number of workers was available in Parola (73). Considering the various categories separately that the tahsils under the first category of Low (below 100) constituted the whole Western part of the district

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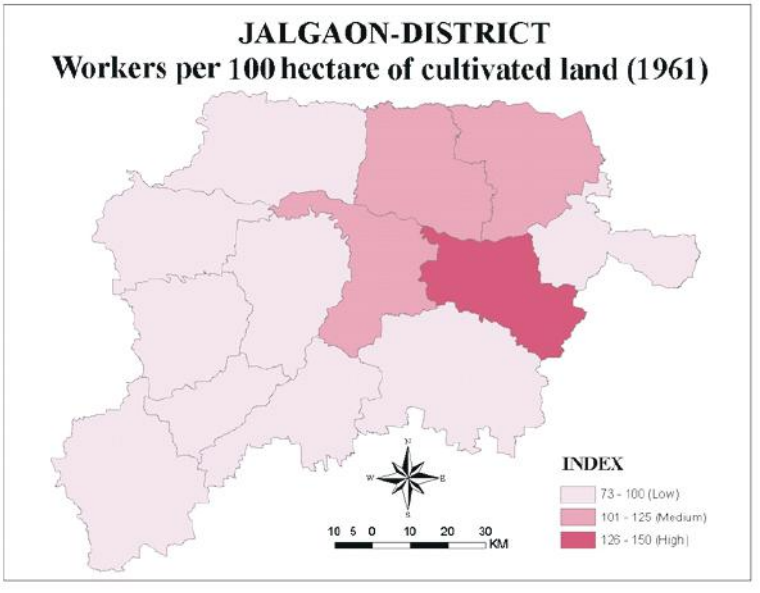
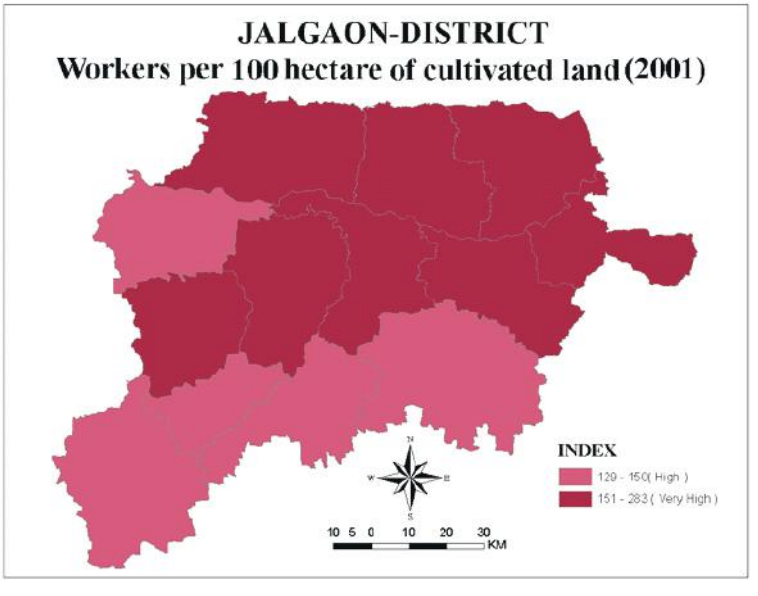
with Muktainagar and Jamner Taluka from Eastern district. The tahsils of Yawal, Raver, and Jalgaon belongs to the category of medium (in between 101 to 125). The Bhusawal Taluka having more than 126 workers per 100 hectare of cultivated land fell under the category of High.

Map No. 5.26 depicted the notable variation in spatial distribution of workers per 100 hectare of cultivated land in 2001. During this period, majority of the tahsils stand on the very high category (more than 151). The Northern and central tahsils except Amalner were holding this category. The Southern tahsils of the district and Amalner fell in the category of high (more than 129 to 150).Not a single tahsil was under the category of low and medium. The increased area under irrigation and intensive cultivation engaged more people in the agricultural sector of the district.

Fig. No. 5.25 Clearly depicts the temporal variation in the distribution of workers per 100 hectare of cultivated land. As stated above, the only 97 workers /100 hectare were recorded in 1961 which got increased to 121 in



Map No. 5.25



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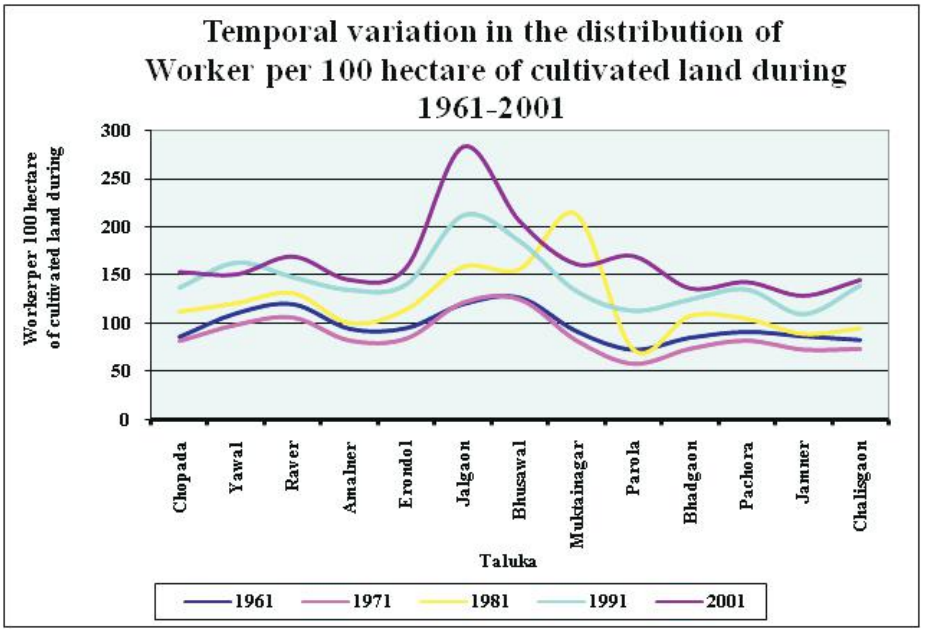

Fig. No. 5.25

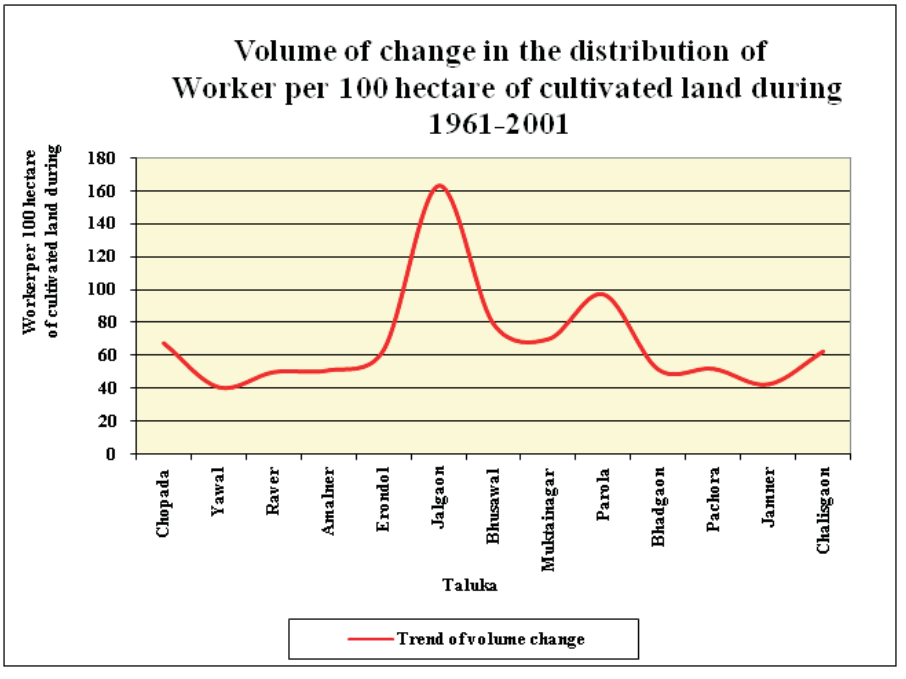

Fig. No. 5.26

1981 and became 145 in 1991. But it was again moved to 166 in 2001. In 1961 the Northeastern tahsils had relatively high pressure of population on rural land while in 2001 almost all tahsils show the pressure of population on their cultivated land. The category of Bhusawal taluka remains unchanged while all tahsils shifted to high and very high categories during the period of study.

The graphical representation through an irregular trend in volume of change in actual number of workers from 1961 to 2001 is delineated by fig. No. 26. The workers/ 100 hectare of cultivated land in

Jalgaon district has shown remarkable change during 40 years. The highest volume of change was noticed by 163 followed by 97 in Parola and 79 in Bhusawal. Overall volume of change varies within the range between 40 to 70. It may be noted that the district has relatively high pressure of population on rural lands and in fact not much industrial development has taken place. Consequently a large surplus of rural work force migrated to the industrial areas of urban centers of the district i.e. Jalgaon and Bhusawal.

(B) Cultivators per 100 hectare of cultivated of land :

Jalgaon district had carried 42 cultivators per 100 hectare of cultivated land in 1961, compared to 39 in 2001.The rate of increase of cultivated land in the district was low as compared to the rate of increase of number of cultivators during 1961 to 2001.The total cultivated land of the district was 840830 hectare with 346022 cultivators in 1961 whereas it was 976607 hectare with 381751 cultivators in 2001.The cultivated area was increased only by 135777 hectare but the number of cultivators was increased by 35729 up to 2001 and thus, the number of cultivators was noticed only 39 per 100 hectare of cultivated land in 2001 as compared to 42 in 1961.

Table No 5.18
Cultivators per 100 hectare of cultivated land in Jalgaon District
(1961 -2001)

TALUKA	1961	1971	1981	1991	2001	Change
Chopda	35	24	35	34	36	1
Yawal	50	36	44	35	32	-18
Raver	53	34	45	36	36	-17
Amalner	36	24	32	37	36	-1
Erondol	40	26	41	38	42	2
Jalgaon	39	28	27	36	32	-7
Bhusawal	44	30	38	37	38	-6
Muktainagar	42	30	42	44	50	8
Parola	40	21	36	38	43	3
Bhadgaon	42	27	42	39	40	-3
Pachora	42	28	40	40	40	-2
Jamner	38	24	33	41	42	4
Chalisgaon	40	26	37	45	44	4
Total	**42**	**27**	**38**	**38**	**39**	**-2**

Source : Compailed by Author

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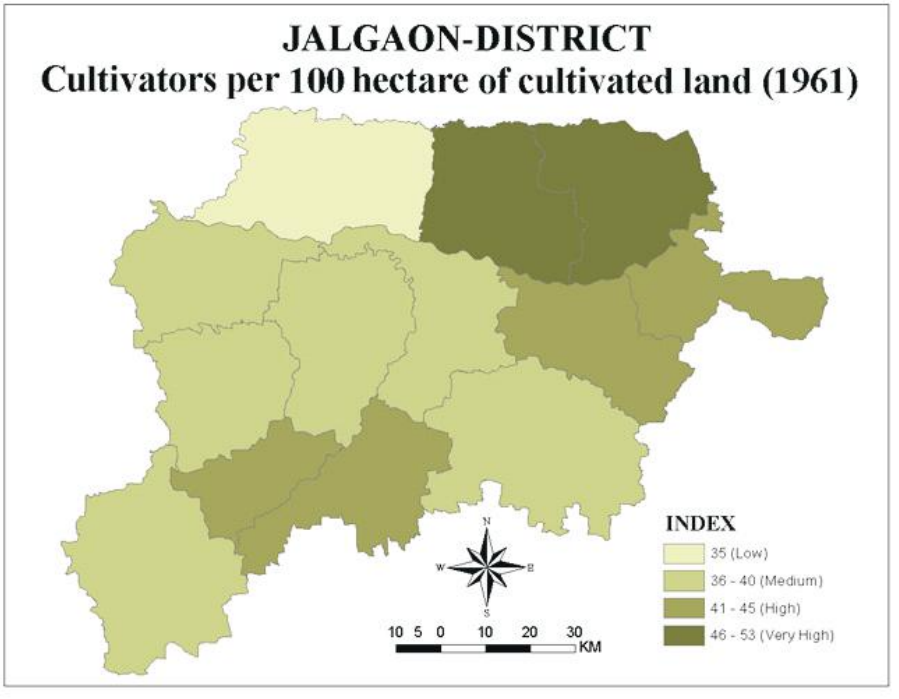
As stated above, the table No.5.18 shows that the number of cultivators is continuously decreasing. This change may be due to the miss match in increase/decrease in the cultivated land and the numbers of cultivators throughout the period of investigation.

Map No. 5.27 shows (1961) Spatial distribution of cultivators per 100 hectare of cultivated land in Jalgaon district. Two tahsils viz. Yawal and Raver recorded more than 45 cultivators belonging to the category of very



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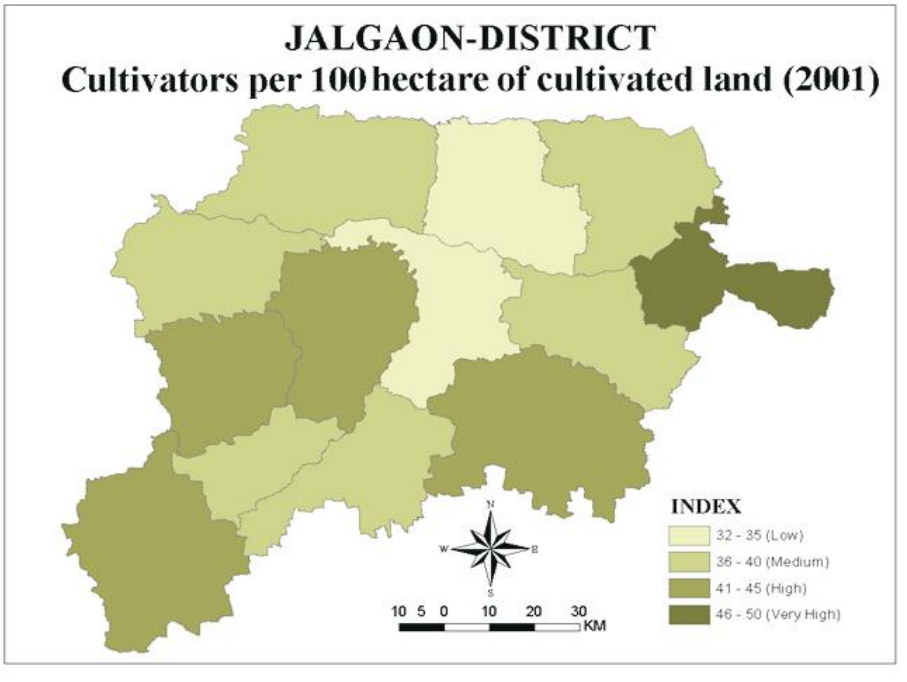

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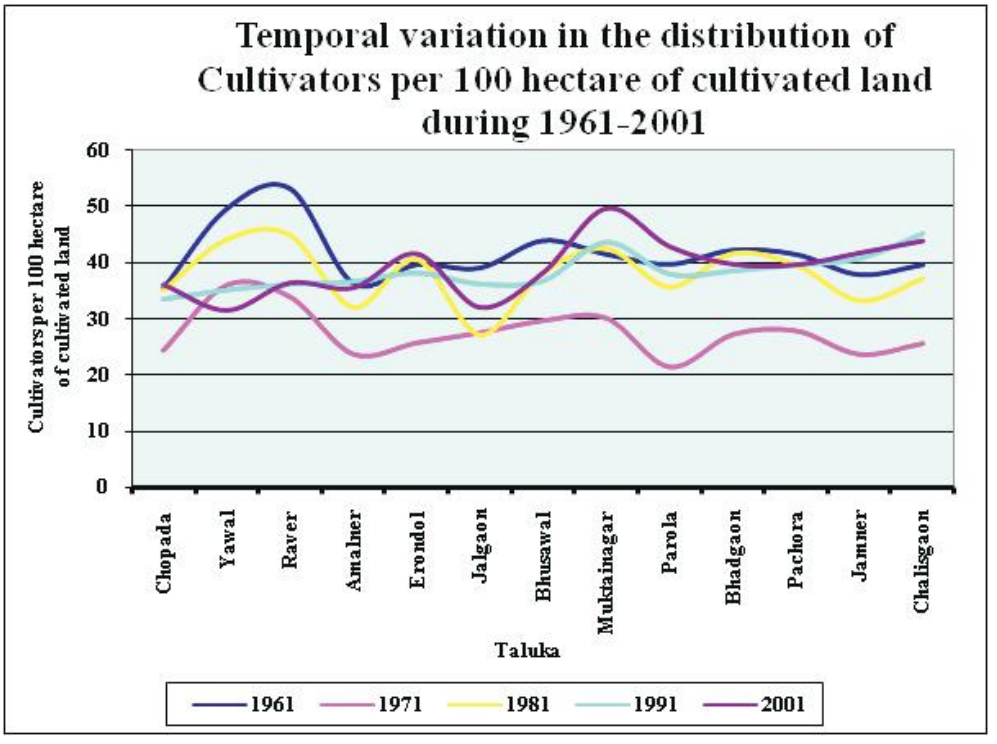

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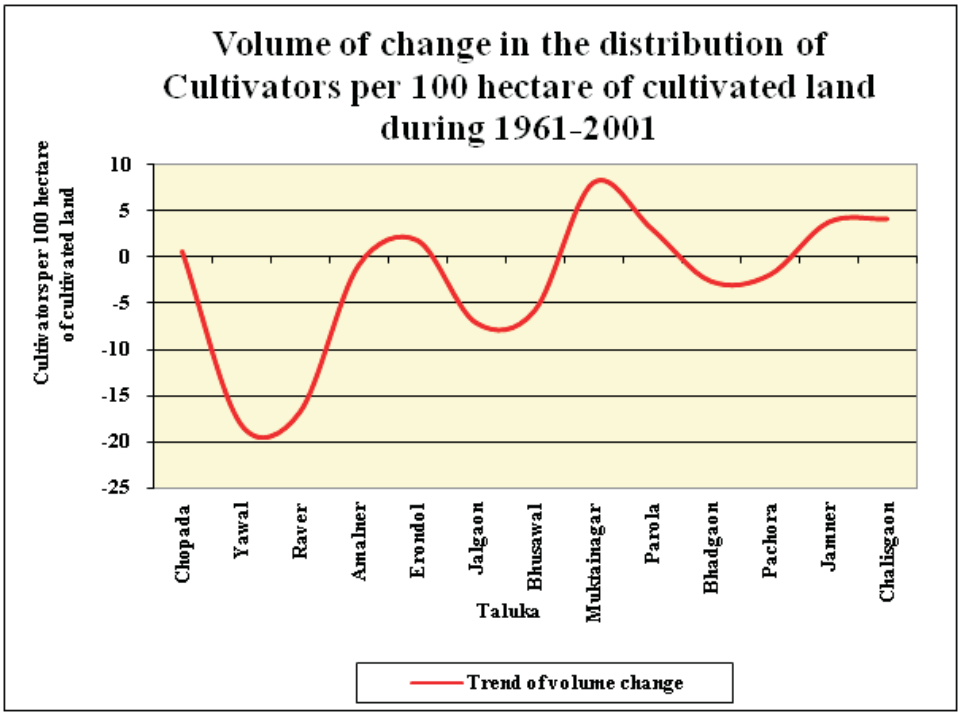


Fig. No. 5.28

high and four tahsils viz. Muktainagar, Bhadgaon, Bhusawal and Pachora noticed the cultivators between 36 to 45 enjoyed the category of high. Jamner, Jalgaon, Erondol, Amalner, Parola, and Chalisgaon tahsils accounted for cultivators in between 36 to 40 owned by the category of medium whereas Chopda taluka recorded the cultivators below 35 and it remained in the category of low. The spatial distribution of cultivators during this period was very irregular and uneven.

In the year 2001, the spatial distribution of cultivators per 100 hectare of cultivated land is depicted by Map. No. 5.28. Muktainagar taluka carried more than 46 cultivators per 100 hectare which was in very high category where as Yawal and Jalgaon tahsils recorded cultivators less than 35 located in the category of low. High category (between 41 to 45) was constituted by Chopda, Raver, Bhusawal, Amalner, Bhadgaon and Pachora taluka and Medium category (between 36 to40) was constituted by Jamner, Erondol, Parola And Chalisgaon.

During the period of forty years, there were remarkable changes observed (fig . no :5.27). In the year 1961,Yawal and Raver tahsils were in the category of Very high (More than 46) but moved to Low (below 35)and medium (between 36 to 40) respectively in the year 2001. Similarly, Pachora and Bhadgaon and Bhusawal tahsils were in the category of high (between 41 to 50) but shifted to Medium (between 36 to 40).The other tahsils recorded positive change from 1961 to 2001.There was no change in the category of Amalner taluka from 1961 to 2001 and carried cultivators between 36 to 40 per 100 hectare of cultivated land.

Volume of change in the spatial distribution was represented by very irregular trend of change shown in fig. No.: 5.28. Maximum negative volume of change in actual number of cultivators was recorded by Yawal and Raver followed by Bhusawal and Jalgaon Taluka. On the other hand, maximum positive volume of change in actual number of cultivators was noticed in Muktainagar followed by Jamner and Chalisgaon taluka.

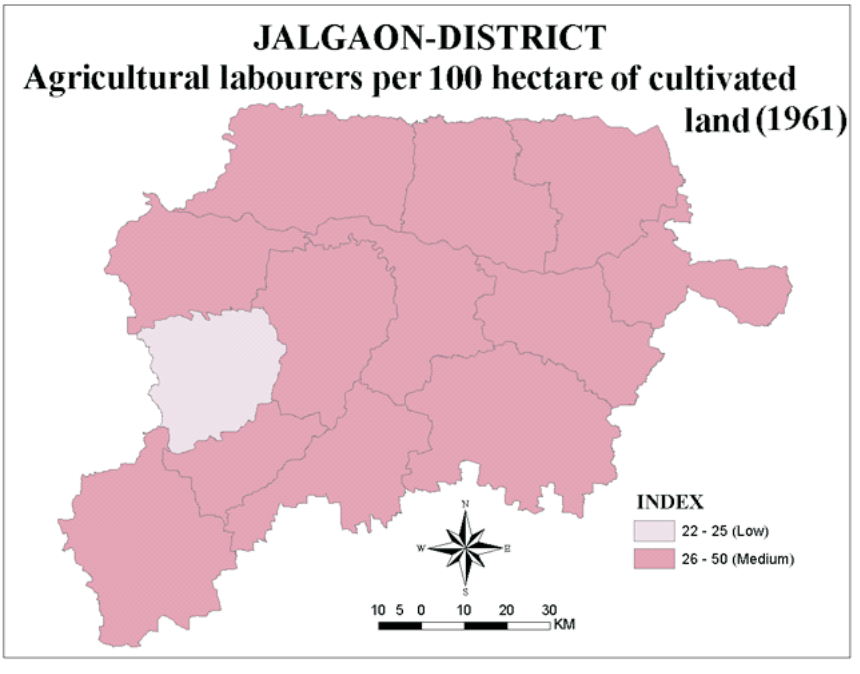
(C)Agricultural labourers per 100 hectare of cultivated land :

As mentioned earlier, a person who works in another's land for wages in money, kind or share, is an agricultural labour, sharing no risk.

Table No.5.19
Agricultural labourers per 100 hectare of cultivated land

TALUKA	1961	1971	1981	1991	2001	Change
Chopda	38	45	58	74	91	54
Yawal	41	46	54	76	90	48
Raver	46	55	65	84	107	60
Amalner	35	36	41	67	70	35
Erondol	33	44	54	71	89	55
Jalgaon	37	43	48	75	78	42
Bhusawal	35	39	46	70	67	32
Muktainagar	41	44	53	78	93	52
Parola	22	27	26	46	59	37
Bhadgaon	32	36	52	56	78	46
Pachora	34	39	43	65	73	39
Jamner	39	40	44	71	69	30
Chalisgaon	26	32	34	54	63	37
Total	**35**	**41**	**48**	**68**	**79**	**44**

Source : Compiled by Author



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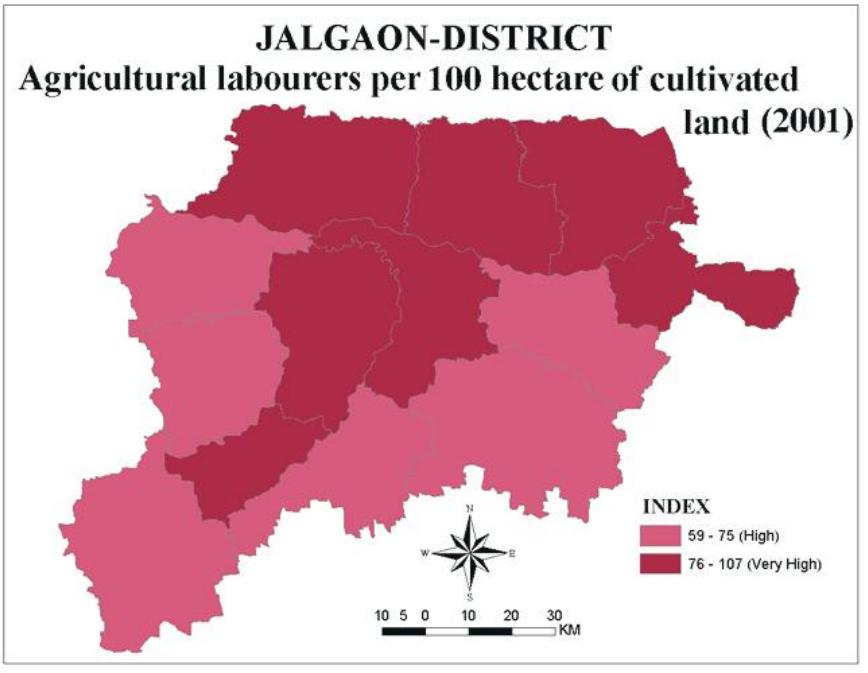

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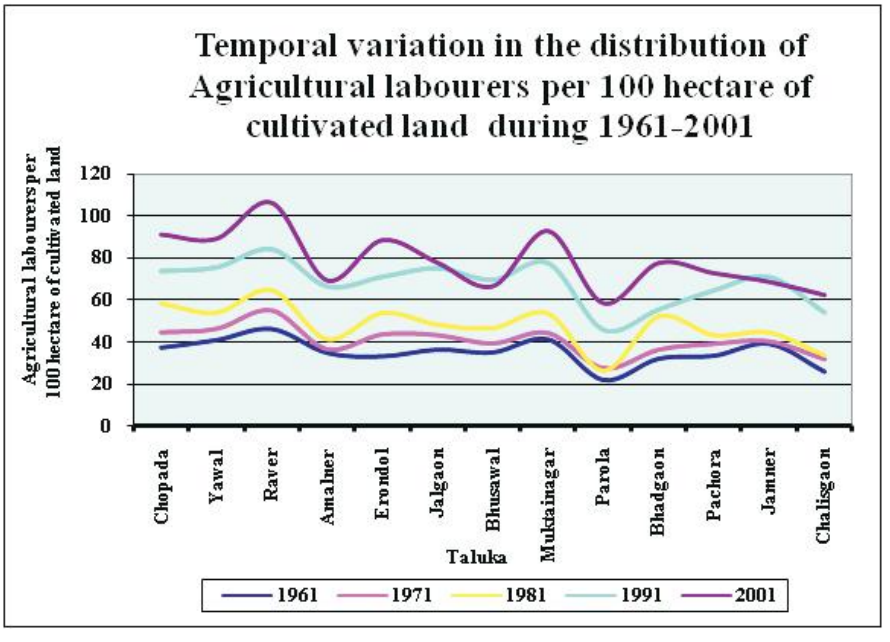

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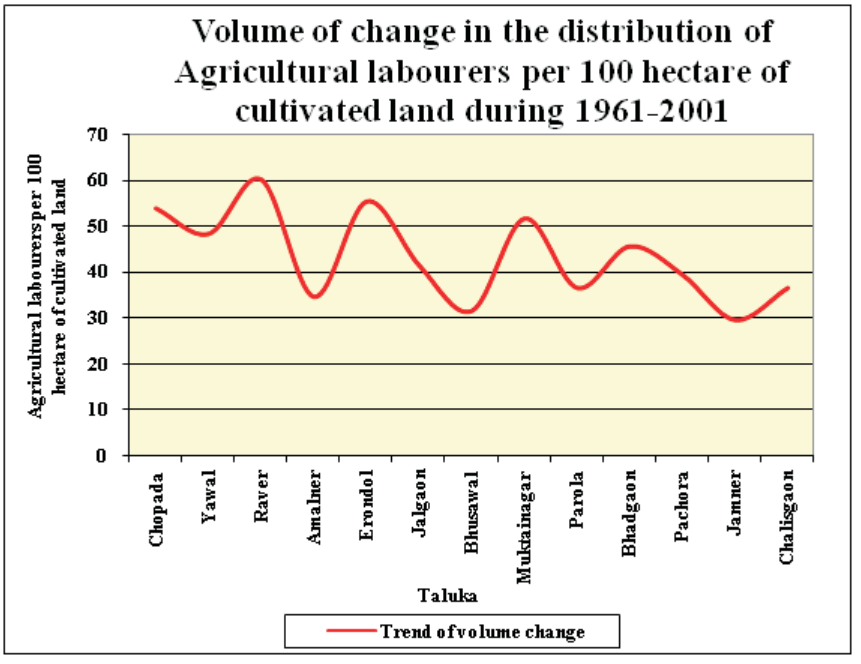


Fig. No. 5.30

The share of agricultural labourers i.e. land-less farm workers in the district was 16.74 % (1961) and 20.72 % (2001). Table No. (5.19) show the talukawise distribution of agricultural labourers per 100 hectare of cultivated land in the district. The district still consists of more than 70 % of people engaged in agricultural activities. The district has 46.o8 % (1961) and 43 % (2001) working population out of which agricultural labourers were 36.32 % (1961) and 47.73 % (2001).

The spatial distribution of agricultural labourers per 100 hectares of cultivated land in the district during 1961 is uniform. (Map No. 5.29 The average agricultural labourers per 100 hectare of cultivated land were recorded 35. The highest number of agricultural labourers was noticed in Raver (46) followed by Yawal (41) and Muktainagar (41) whereas the lowest number was recorded by Parola (22) .Except Parola taluka , all tahsils had more than 25 agricultural labourers per 100 hectare of cultivated land.

As compared to 1961, the spatial distributions of agricultural labourers per 100 hectare of cultivated land in 2001 were uneven.

(Map.no.5.30). The average agricultural labourers per 100 hectare of cultivated land were recorded 79. The highest number of agricultural labourers was noticed in Raver (107) and the lowest number was recorded by Chalisgaon (63). During 2001, the tahsils were distributed only into two categories. Northern part (Chopda, Yawal, Raver), North Eastern part (Muktainagar) and Central part (Jalgaon, Erondol, Bhadgaon) which belong to the category very high (more than 75 agricultural labourers) while high category (between 50 to 75 agricultural labourers) consists the tahsils of Bhusawal, Jamner, Pachora, Chalisgaon, Parola and Amalner.

Temporal variation in the distribution of agricultural labourers per 100 hectare of cultivated land during 1961 to 2001 is shown by fig. No.(5.29). At every decade the number of agricultural labourers were increased. They were 35 per 100 hectare of cultivated land in 1961, 41 in 1971, 48 in 1981, 68 in 1991 and became 79 in 2001. The overall increase from 1961 to 2001 is recorded by 44.The highest number of change is noticed in Raver taluka by 60 .The distribution of agricultural labourers per 100 hectare of cultivated land is showing the rural economic base of the district where agriculture is

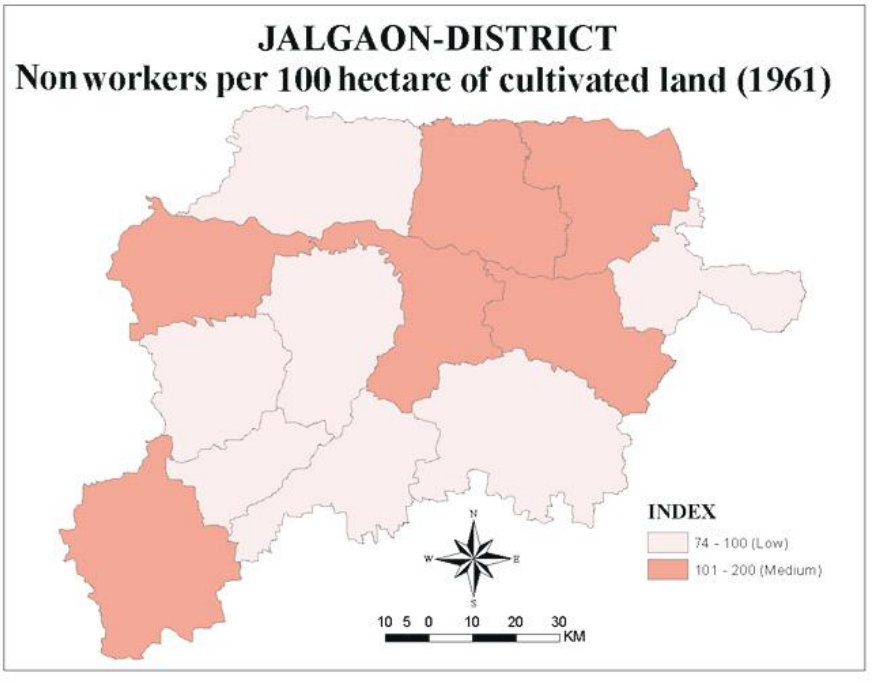
one of the activity which provide employment to the rural population.

Fig. No. 5.30 reveals the volume of change in the number of agricultural labourers per 100 hectare of cultivated land from 1961. Throughout the period of investigation the volume of change in the actual number of agricultural labourers is in between 30 to 60. The highest change is recorded by Raver Taluka (60) and lowest change is recorded by Jamner Taluka (30).The trend of volume of change is very irregular showing four peaks and four deeps.

(D) Non workers per 100 hectare of cultivated land :

Number of Non workers per 100 hectare of cultivated land is the real demographic aspect which determines real pressure of population on agricultural land. Table No.(5.20) shows decennial number of non workers per 100 hectare of cultivated land in the district.

The share of non working population of the district is always more than 50 % in every decade. It was 53.91 % in 1961, 57.8 % in 1981 and 59.16 % in 2001.



Map No. 5.31

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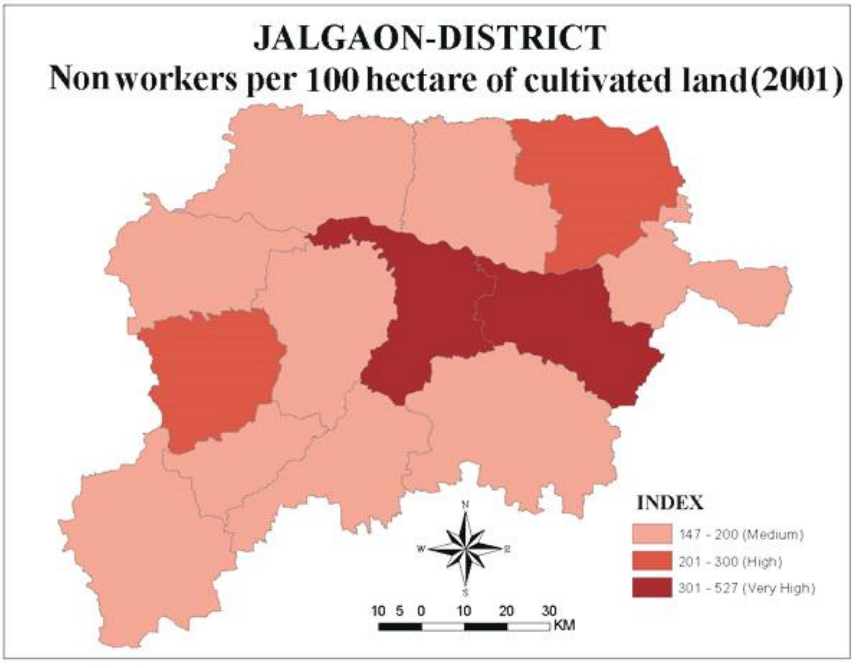

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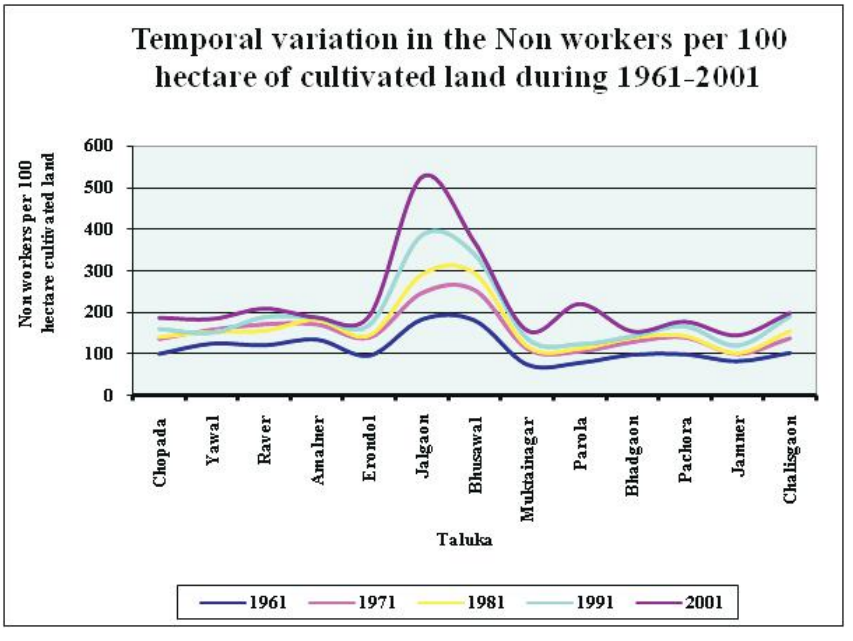

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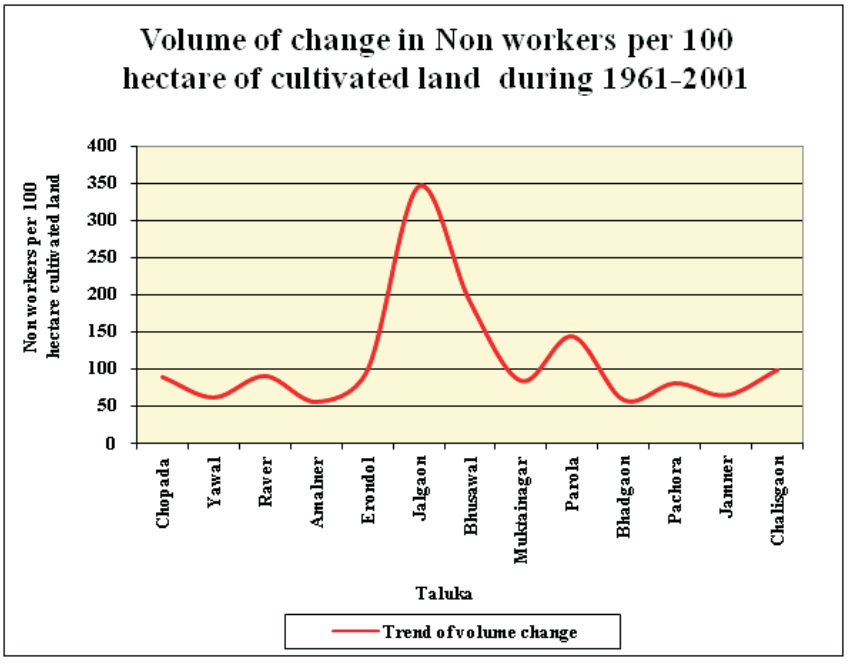

Fig. No. 5.32

Map No. (5.31) shows the spatial distribution of non workers per 100 hectare of cultivated land in the district for 1961.The tahsils of Chopda, Muktainagar, Erondol, Parola, Bhadgaon, Pachora and Jamner were included in the category of low which carried less than 100 non workers per 100 hectare of cultivated land. Yawal, Raver, Amalner, Jalgaon, Bhusawal and Chalisgaon talukas were belonging to medium category (between 100 to 200).

The distribution of non workers per 100 hectare of cultivated land in the year is shown by Map No. (5.32). Amongst the three categories Medium category (less than 200) consists nine tahsil viz. Chopda, Yawal, Muktainagar, Amalner, Erondol, Chalisgaon, Bhadgaon, Pachora, and Jamner, the high category (between 200 to 300) covered Raver and Parola talukas whereas Jalgaon and Bhusawal Talukas belong to the category of very high (more than 300). The population below 20 in the urban area is more and the area under cultivation due to urbanization become less and it is the main cause for the highest number of non workers per 100 hectare of cultivated land in Jalgaon and Bhusawal Taluka.

Fig No. (5.31) clearly shows the uniform trends of gradual increased in number of non workers per 100 hectare of cultivated land in the district. The rate of increase of non working population in every decade is always more than the rate of increase in cultivated land in the district. The remarkable change noticed in the year 2001 was that, the tahsils of Jalgaon and Bhusawal shifted from Medium to very high category. It was only because of the rate of urbanization increased from 1961 to 2001.

The volume of change in non workers per 100 hectare of cultivated land during 1961 to 2001 is shown by the fig. No. (5.32). In general the range of volume of change during the period of investigation was between 50 to 150.The Jalgaon and Bhusawal tahsils show the peak of change (Jalgaon by 345 and Bhusawal by 190).

CONCLUSION:

1. A worker per 100 hectare of cultivated land is one of the important demographic aspect of population of the district. Jalgaon district as a whole possessed 166 workers per 100 hectare of

cultivated land in 2001 as compared to 97 in 1961.

2. The higher numbers of workers per 100 hectare of cultivated land indicated the availability of working hands for agricultural operations.

3. It has been found that the district has relatively high pressure of population on rural lands and in fact not much industrial development has taken place. Consequently a large surplus of rural work force migrated to the industrial areas of urban centers of the district i.e. Jalgaon and Bhusawal.

4. At every decade the number of agricultural labourers were increased. The overall increase in agricultural labourers from 1961 to 2001 is recorded by 44. The highest number of change was noticed in Raver taluka by 60 .The distribution of agricultural labourers per 100 hectare of cultivated land is showing the rural economic base of the district where agriculture is one of the activity which provide employment to the rural population.

5. The population below 20 years of age in the urban area is more and the area under cultivation due to urbanization become less and it is the main cause for the highest number of non workers per 100 hectare of cultivated land in Jalgaon and Bhusawal Taluka.

6. The remarkable change noticed in the year 2001 was that, the tahsils of Jalgaon and Bhusawal shifted from Medium to very high category. It was only because of the rate of urbanization increased from 1961 to 2001.

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