CHAPTER VIII

CONCLUSION, PROBLEM AND SUGGESTION

8.1 Introduction
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8.4 Suggestion
8.1 Introduction:

Chapter seven was concerned with case studies of selected villages in Jalna district. Three Villages are choose in every tahsils some aspects like irrigated area, livestock, agricultural implements, general landuse, agricultural landuse and agricultural problems of selected villages have been discussed. Agricultural development region of the study area also discussed in seventh chapter.

This chapter is concerned with some up main conclusion of the study (presented in second & seventh chapter) to get comprehensive view of the base of this conclusion. Here in this chapter an attempt is also made to discuss the agricultural problem. Suitable suggestions are also made in this chapter to change the existing situation and there by to achieve agricultural development in the study region.

8.2 Conclusion:

The following conclusion are drown from chapter second to seven.

1) The district of Jalna in located in the central part of Maharashtra state in Marathwada region. It is located between 19°15' to 20°32' North latitudes and 75°36' to 76°45' East longitudes, Jalna district is divided into eight tahsils, but due to not availability of base year data Badnapur, Ghansawangi & Mantha tahsils are not considered for study.

2) The main range of Jalna hill with branches from the Satmala ranges runs west east for a length of 100 kms. There are not lending peaks in this ranges. The small peaks includes the hills of Jalna, Partur and Ambad having narrow ridges with flat tops that stretch east ward and gradually sink into the plain. The slope of the land towards south and the average elevation about sea level is found as 534 meters.

3) Godavari, Purna, Dudhana, Musa, Girija, Galhati, Khelan, Dhamana, Kundalika, Sukna, Jui, Jivrekha are the main rivers in Jalna, district. These rivers played very important role in the agricultural development of the study region.
Almost all the rivers become dry in summer season. There in shortage of water in the region in summer season agricultural activities are affected.

4) Cold weather commences by about the end of November when temperature began to fall rapidly. December is the coldest month of the year with the mean daily maximum temperature of $28.72^\circ C$ and the mean daily minimum temperature at $13^\circ C$ in the cold season the district is sometime. Affected by the cold waves in association with the eastward passage of western disturbances across north India, When the minimum temperature made drop down to about $2^\circ C$ to $4^\circ C$ from the beginning. In March there is a rapid rise in the both day and night temperature. May is the hottest month of the year with mean daily maximum temperature $39.8^\circ C$ and mean daily minimum temperature $24.4^\circ C$ during the hot season. The heat in often intense and the dry temperature on individual days may rise about $45^\circ C$. There is relief from the heat on some days when thunder showers occur during the afternoon.

5) Above more than 84 percent of annual rainfall on the study region is received during the southwest monsoon season. July get the highest rainfall from southeast monsoon winds. The mean annual rainfall in the region varies from 619 mm to 713.65 mm. Generally rainfall decreases from central part of the district towards north side and it increase to the southern side. That co-efficient of rainfall variability ranges from 22.27% to 29.24% in study region. It was highest in Partur tahsil where as lowest variability was found in Jalna tahsil during the period of investigation. There are low agro climate zone in Jalna district Bhokardan, Jafferabad, Jalna and Partur tahsil comes under assured rainfall zone. Where as scarcity zone is found in Ambad tahsil.

6) The main factor that has influenced the development of soil in Jalna district in the conducting and hilly topography. Different types of soil are found in the study region. Deep black soil (more than 36" depth) cover about 10.62% portion of the Jalna district, while medium black soil (between 9" to 36" depth) covers 59.79% portion of study area. About 29.66% portion of the district is covered by course and Shallow (below 9" depth) soil. The soil of Jalna district is black cotton soil is derived from the trap volcanic rock and is rich in plant food. It is soil of
regur formed by the weathering of the trap rock. The soil varies consider ably inturrence and depth and can be classified as light medium and heavy soil formade as a result of their location The soil along the river basins are deep, black and very fertile.

7) In Jalna district out of the total geographical area was below 0.60% geographical area was found under forest in Ambad, Jafarabad & Partur tahsils while about 0.60% area was found under forest in Jalna and Bhokardan tahsil during 2000-2005 (Map. No. 2.7A)

Zero percent change was observed in forest area in Partur and Jafferabad due to decrease in rainfall below 0.2% negative change in forest area was noticed in Bhokardan on the other hand below 0.4% positive change in forest area was noticed in Jalna and Ambad due to decreased in forest area rate of rainfall in decreased in entire study region. (Map. No. 2.7 B)

8) The trends of general, rural & urban population growth rate very from the one another during the span fifty year in Jalna district. The trends of general population is from 26.71% to 15.84% from 1951 to 1981. Again it was increased up to 32.45% and then decreased up to 18.17 % in 2001 rural population was decreased by 16.90% from 1951 to 1981. It was increased 17.98% in 1991 and decreased by 2.88% in 2001. Urban population growth rate increased from 15.91% to 35.02% from 1951 to 1971. Again growth rate of population decreased up to 31.72% during the decade of 1971 to 1981.

That below 200 crude density per sq. k.m. was found in Partur, Jafarabad and Ambad where as 200 to 250 crude density was observed in Bhokardan in 2001. Above 250 crude density per sq. km. was observed in Jalna tahsil in 2001.

Physiological density per 100 hectare was 170 in 1981 & it is increased up to 259 per 100 hectare in 2001 in the entire study region. Above 250 person per hectare was found Bhokardan, Jalna tahsil. Where as 200 to 250 person per hectare was observed in Jafarabad Partur tahsil and below 200 person per hectare was observed in Ambad tahsil during the period 2001.

Agricultural density below 60 person per 100 hectare was found in Ambad Jafarabad tahsil in 1981. About 60 to 70 person density was observed in Partur and
Jalna tahsil and Above 70 person per 100 hectare agricultural density was found in Bhokardan in 1981.

9) There are 23 submarket centers which are unevenly distributed in five Agricultural Market Committee's in the study region. Agricultural market committees are located at Jalna, Bhokardan, Partur, Mantha and Ambad. The farmers of the district sale their agricultural products in the markets Jalna market committee is the most important marketing center in the district and also Marathwada region.

In Jalna district out of the total consumption of electricity about 38.43% electricity was consumed in industrial area where the share of domestic, agricultural, commercial, road lighting & other were 31.44%, 14.07%, 11.52%, 4.04% & 0.50% respectively in 1982-83 during 2004-05 about 56.43% electricity was consumed for the domestic purpose. The share of agricultural, commercial, industry, road light and other were 34.23%, 5.67%, 2.46%, 0.61% respectively.

10) During 2004-05 the highest consumption of chemical fertilizer were found in Jalna (24.44%) on the other hand the lowest consumption was recorded in Jafrrabad (14.68%) tahsil. Use of chemical fertilizers increased by 1.87 times during the period of investigation, During 1982-83 about 2393 quintals high yield variety seeds were used in Jalna district. Out of the total seeds nearly 59.25% share was acquired by the cereals. The use of high yield seeds was increased by 1.7 time in 1995-96 and 1.97 times in 2004-05.

11) There is not single major project in the Jalna district. But it has got benefit of Jayakwadi projects After the completion of entire work of Jayakwadi project 43120 hectares land of Jalna district comes under Irrigation. During 2004-05 about 21350 hectare land was irrigated by Jayakwadi Project.

12) There are seven medium irrigation projects in Jalna district, Jui project, Appar Dudhana, Galhati, Jivrekha, Kalyani-Girija, Dhamma and Kalyan Project. These projects were completed before 1987 in different part of district Government has spent about Rs. 1100.31 lakh for the completion of seven medium projects. The length of canal is different. Jui project canal has 18.21 km length where as Upper Dudhana project canal is only 8 km. Cultural command area of the
medium project is about 19588 hectares. The total irrigated area of these medium projects is about 13477 hectares. During 1996-97 two medium projects like Galhati & Jivrekha were completed empty. Remaining five medium projects were partly filled during the rainy season. About 1725 hectares land was irrigated during winter season in 1999-2005 most of these medium projects become dry in summer season. So they not provided water for irrigation in summer season.

13) Table 3.12 indicates that out of the total minor projects about 41.52 percent projects were concentrated in Ambad & Bhokardan tahsil where as only 13.85% were found in Jafirabad tahsil as on March 2005. Out of the total irrigation potentials about 24.20% potentials are created in Bhokardan tahsil, while only 13.65% potentials are found in Ambad tahsil as on 31st march 2005 only 3281 hectares land was net irrigated in study region.

In addition of minor schemes 286 percolation tanks were completed in Jalna district. Out of the total percolation tanks about 90 percolation tank are found in Jalna tahsil, 87 tanks in Bhokardan, 44 in Jafirabad, 39 in Ambad & 26 in Partur tahsil. About 84 percolation tank are in progress. 74 Kolhapur types bandhares have been completed and many estimates files are put to the sanction to the Zillah Parishad Office Jalna.

14) During 2004-05 about 100% wells were used for irrigation in Jafirabad and Bhokardan tahsil. Only 0.63% wells were not used for irrigation in Jalna tahsil, 15.25% in Ambad and 23.12% wells were not used for irrigation in Partur tahsil in 2004-05. Most of the wells becomes dry in summer season.

Below 10% net sown area was found in Partur tahsil where as 10% to 50% net sown area was found under irrigation during 2000-05. Below 4% negative change in Irrigated area was recorded in Bokardan and Partur 1.32% to 3.76% Positive change in irrigated area was experienced in Ambad, Jalna and Jafirabad tahsils between 1980-85 and 2004-05.

15) Out of the total geographical area below 0.5% was found under forest in Jafirabad and Partur tahsil where as 0.5% to 1% geographical area was observed under forest in Ambad tahasil during 2000-05. About 1% to 1.5% geographical
area was noticed under forest in Bhokardan & Jalna tahsil during 2000-05 (Map No. 4.3 A)

Area not available for cultivation was noticed zero percent was noticed in Jafrabad tahsil and below 1% negative change was found in Bhokardan tahsil between 1980-85 and 2000-05 Below 1% positive change in this group was observed in Jalna, Ambad & Partur tahsil.

Out of the total geographical area below 3% geographical area was found under uncultivable land in Partur and 3% to 6% area was observal under this group in Bhokardan, Jalna & Ambad tahsil during 2000-05. Above 6% area was recorded under this category in Jafrabad tahsil during the same period.

The study area has significant land under follow land viz 5.8% (40200 hectares) of the total geographical area during 2000-05. Out of total geographical area below 2% area was found under follow land in Ambad where as 2% to 6% area was found under this group in Partur tahsil during 2000-05. Above 6% follow land was recorded in Bhokardan, Jalna & Jafrabad tahsil during the same period.

16) Net sown area increased from 606200 hectares to 65900 hectares between 1980-85 and 2000-05. It means that about 6.63% net sown area was increased in the entire study region during the period of investigating. Out of total geographical area below 80% area was found under net sown area in Jafrabad which 80% to 85% area was net sown area in Bhokardan and Jalna tahsil and Above 85% geographical area was recorded in Partur, Ambad tahsil during the period investigation.

17) Table No. 4.2 gives us idea about tahsil wise per capita net sown area in Jalna district during the last three decades. During 1981 the highest per capita net sown area was recorded in Jafrabad (0.74 hec. ) and Ambad (0.74 hec.), where as the lowest per capita net sown area was recorded in Jalna (0.42 hec.) tahsil in 1981. During 2001 per capita net sown area was decreased in every tahsil. Ambad tahsil have recorded 0.54 while the Jalna tahsil have recorded 0.26 hectare per capita in the Jalna district tahsil.

18) Table no. 4.3 & Map no. 4.8 clearly indicates that Jalna, Partur, and Ambad tahsil have shown dynamic (About 5%) change in general landuse. Bhokardan and
Jafrabad tahsil have shown semi dynamic (below 5%) volume of change in general landuse during the period investigation.

Low efficiency (Below 105%) was recorded Partur & Ambad tahsil while moderate landuse efficiency (105% to 110%) was recorded in Bhokardan & Jalna tahsil and high landuse efficiency was noticed in Jafrabad tahsil during the period 2000-05.

19) Correlation matrices table 4.5 reveals that very slight positive and negative correlation was found in all tahsil during the period of investigation. Particularly all the categories are having very slight correlation among them hence there is vide scope for agricultural development. It is essential to increase irrigated land by hook and crook in the study region so that we can increase agricultural production on large scale.

20) Table No. 5.1 reveal that their are various ups and downs in area under total cereals, total pulses, total oil seeds, cotton & sugarcane. The area under rice decrease in 15 years during the period of 25 years. Lowest decrease in rice area was recorded in 2001-02 (3000 hec.) where as the highest decrease occur in 2002-03 and 1989-90 (76700 hec.)

Wheat one showed 11 times decreased during the period of 25 years. The highest negative changes was observed in 1995-96 on the other hand the lowest negative change in wheat area took place in 2001-02. Highest positive change was recorded in 1984-85.

21) Table No. 5.2 indicates that jowar indices was 100% for thirteen year. Both physical and non physical determinants of agriculture are responsible for the ups and downs in area of jowar during the period of investigation. Indices of bajara was above 100% for the twenty three years and below 100% in only two years variability of rainfall is responsible for the negative & positive change in bajra area.

22) Gram area decreased in ten years from 1980-81 to 2004-05 the highest increased in gram was in 2004-05 (617500 hec.) and lowest increased in gram area was noticed in 1994-95 (10600 hec.). Gram indices were below 100% except
1991-92 (121.55) and 2000-01 (121.12%). It was only 27.85 in 1998-99. It was decreased by 31.75% in 1980-81 to 2004-05.

23) Tur area decreased in 14 year during the period of investigation where as it was increased in 11 year from 1980-81 to 2004-05. Tur area was decreased by 44.53 lack hectares in 1991-92. Indices of tur was above 100% through out the investigation atom period except in the year 1991-92 and 1998-99. In 1985-86 index number of tur was 259.75% the variability of rainfall was responsible for the ups and downs of the tur area between 1980-81 to 2004-05.

24) Indices of groundnut were above 100% in thirteen years during the period of investigation it was between 62.06% and 90.62% in 1993-94 and 1992-93. Actually it was decreased by 53.57% during the period of investigation.

25) Sunflower is raised in Kharip & Rabbi season in the study region sunflower area decreased in three years from 1980-81 to 2004-05. The highest negative change was observed in 2002-03 and lowest negative change in sunflower area in 1988-89 (31300 hec.). Indices of sunflower area were tremendously increased during the period of investigation. It was increased by 7780.00 from 1980-81 to 2004-05.

26) Cotton in the important cash crop in the study region an index of cotton was found below 100% except during the period under study. Cotton area shared twelve time negative change, the highest negative change was noticed in 1999-2000, where as the lowest negative change in cotton area was found in 1986-87. The highest positive change in cotton area (38.96 lakh hec.) was noticed in 1995-96 where as the lowest positive change in cotton area was experienced in 1984-85.

27) Sugarcane area showed ten time decreased during the period under study. The highest positive change in Sugarcane area (745100 hec.) was noticed in 2002-03 on the other hand the lowest change was observed in 1986-87. The highest negative change was found in 1991-92 and the lowest negative change in sugarcane area was observed in 1993-94.

Index of sugarcane was found above 100% throughout the period of investigation. Indices of sugarcane increased by 274.93 from 1980-81 to 2004-05.
Table No. 5.2 indicates that the index number of area under crop like Rice, Wheat, bajra, jowar, other cereals, gram, tur, mung, other pulses, groundnut, safflower, jawas, other oilseeds, cotton, sugarcane & fruit and vegetable were increase and decrease in the entire period of investigation in the study region.

28) Table. No. 5.3 reveal that position in 1980-81 to 1984-85 was that out of gross cropped area of 20600 hectares area was under rice, 37 lakh under wheat, and 199 lakh under jowar. It means that nearly 57.29% area was under total cereals where as about 20.45% area was under pulses during the first quinquennium. The share of jawas, safflower, sunflower, ground nut and other oilseeds were 6.54%, 3.66%, 0.50%, 0.46% and 0.04% during 1981-85. Nearly 17.34% area under cotton & 0.84% was under sugarcane during same period.

In second quinquennium total gross cropped area increased by 1.13%. Area under total cereals decreased from 57.29% to 49.88%, Area under total oilseeds increased from 12.15% to 14.77% during second quinquennium.

Gross cropped area decreased from 763.14 lakh to 762.65 lakh hectares between 1990-95. In this quinquennium about 54.95% area was under total cereals. All pulses have shown decrease in their area except mung during third quinquennium. Sugarcane, Chills, Fruite, & Vegetable area was increased to some extent in 1990-95. The area under cotton was 15.77% where as total oil seeds area was decreased from 14.77% to 8.97% during third quinquennium.

In fourth quinquennium area under total pulses increased in 101001 hec. to 108395 hec. Sugarcane area showed decreased from 2.05% to 1.49%, Chille area decreased from 1.67% to 0.28% on the other hand cotton area increased from 15.77% to 26.20% between third and fourth quinquennium.

In fifth quinquennium total gross cropped area was decrease from 7.73 lakh to 6.51 lakh hectares. 2000-01 to 2004-05 the highest area under Jowar (27.32%) and lowest area was found under fodder crops (0.19%) of total gross cropped area. About 4.12% area was found under wheat, 13.44% area was found bajra, 6.81% was found tur, 24.03% area was found cotton period under 2000-05.
29) Rice is not important crop in Jalna district negative change were observed in every tahsils of the district rainfall variability is responsible for the negative change in rice crop area during the period under study.

30) Wheat is raised in rabi season in all tahsils out of the total gross cropped area below 3% area was found under wheat in Bhokardan & Jalna tahsil on the other hand 3% to 6% area was notice under wheat in Ambad & Partur tahsil. Above 6% gross cropped area was noticed under wheat in Jaf Rabad tahsil.

Jowar in dominant crop in all tahsils of Jalna district jowar is ranking first in cropping pattern in all tahsil. Except Bhokardan where only 14.42 gross cropped area was under jowar. 15% to 25% area was recorded under jowar in Jaf Rabad above 25% area was experience in Jalna, Partur and Ambad tahsil during the period of last quinquennium.

All tahsils in Jalna district have showed about 3.10% to 14.19% positive change in bajra area from 1980-85 to 2000 -2005. Below 5% positive change in bajra area was recorded in Partur, Bhokardan, & Ambad tahsil where as 5% to 10% positive change in bajra area was recorded in Jalna tahsil and Above 15% positive change in bajra area was experienced in Jaf Rabad tahsil during 1980-85 to 2000-05.

31) Tur in eight month crops it is sowing in kharip season. Below 5% gross cropped area was recorded under tur Bhokardan and 7% to 8% area was recorded under tur in Jalna, Jaf Rabad and Ambad tahsil during 2000-05 about 2% negative change in tur area was observed in Jaf Rabad, Ambad (0.03%) and above 2% negative change in tur area was found in Partur and Jalna tahsil from 1980-85 to 2000-2005.

32) Groundnut is not important oil seed crop in the study area out of the total gross cropped area are below 0.50% area was found under groundnut in Partur, Ambad and Jalna tahsil. 0.50%to 1% area was noticed in Jaf Rabad tahsil and above 1% area under groundnut was found in Bhokardan tahsil during the period under investigations.

33) Sunflower is the important oilseeds in all tahsils out of total gross cropped area 3.18% area under sunflower in Jalna district during 2000-05 Below 3%
positive change in sunflower area was noticed in Jafarbad, Jalna and Ambad Tahsil where as 3%to 4% positive change was recorded in Bhokardhan and above 4% positive change in sunflower area was observed in Partur tahsil during the period of investigation.

34) Cotton is ranking first in cash crop in all tahsil of Jalna district below 18% area was observed under cotton area in Jafarbad tahsil and above 18% area was found under cotton in Bhokardan, Jalna ,Ambad & Partur tahsil during 2000-05.

Below 1% negative change in cotton area was found in Jafarbad and above 1% negative change was noticed in Partur tahsil below 2% positive change was recorded in Jalna , Bhokardan tahsil during the period of investigation.

35) By applying Weavers method eleven crop combination were found in Bhokardan & Jafarbad tahsil ten in Partur, twelve in Ambad, and thirteen crop combination were observed in Jalna tahsil during 1980-85. No change was observed in Ambad & Jalna tahsil. Bhokardhan, Jafarbad & Partur tahsils have tremendous change in crop combination.

36) As for Doe’s method Ambad, Partur have two crop combination and Bhokardan, Jafarbad and Jalna have three crop combinations in 1980-85 and in twenty five year only one tahsil Ambad have recorded increased one crop in combination and other tahsil has not any change in number of crops combination in 2000-05.

37) Area of high diversification was found in Jalna tahsil and moderate diversification was noticed in Partur, Ambad & Bhokardan during 1980-85. Low diversification was recorded in Jafarbad tahsil during the same period.

No change was recorded in Partur, Ambad, Jafarbad & Bhokardan tahsil where as high to low change in crop diversification was found in Jalna tahsil from 1980-85 to 2000-05.

38) Table no. 6.2 give us idea about trends of production from 1980-83 to 2002-05. The highest change in production was found in the case of sugarcane (17.91 lakh M.T.) where as lowest change was observed in case of gram.

Negative change was found in the case of jowar, rice, groundnut & cotton, about 4.83% 87.07%,54.13% & 81.50% respectively recorded from 1980-83 to
2002-05. The highest positive change in production was recorded in bajra (157.43%) where as lowest positive change in production was noticed in the case of wheat 14.52%, tur, 19.97%, mung 112.22%, sugarcane 140.17% respectively during the period of investigation.

That there is variation annual production. The highest annual change in production was noticed in bajra (7.87%) while the lowest annual change in production was experienced in wheat (0.73%) during the period of 1980-83 to 2002-05.

39) Table no. 6.9 gives the clear cut idea about the tahsilwise trends of yield of selected crops in Jalna district. The wheat yield in concerned it was increased in every tahsil to certain extent between 1980-85 to 2000-05, jowar yield was increased from 1980-85 to 2000-05 in every tahsil except Ambad tahsil. Gram yield increased in all tahsil, where as tur yield was increased only in Bhokardan tahsil during the period of investigation, Groundnut yield was increased in Bhokardan, Jafrabad, Jalna, Ambad, Partur tahsil during he period of investigation. Cotton yield was increasing in all tahsil except Jafrabad, Partur tahsil during the period of investigation.

40) Table no. 6.11 reveals that overall productivity in Jalna district. During 1980-85 the high level of overall productivity (Above 100% ) was recorded in Jafrabad and Partur tahsil the moderate level of overall productivity (96% to 100%) was in Ambad & Bhokardan tahsil and low level of overall productivity was experienced in Jalna tahsil.

During the period of twenty five years only one tahsil has recorded decreased overall productivity in Ambad tahsil (98.70% to 91.53%) and remaining tahsil has increased in overall productivity. That low level of overall productivity was found in Ambad where as high level of overall productivity was experience in Partur & Jafrabad tahsil and moderate level of over all productivity in Jalna & Bhokardan tahsil during the period 2000-2001.

41) Table no. 7.1 reveals that wooden plough are decreased in all over selected villages during the period 2004-05 to 2007-08. While the number of iron plough are increased in Bramhankheda, Devmurti, Pimpri, Pangri Bk, Bharadkheda,
Hadgaon devdi, & Ibrahimpur village. Highest number of iron plough are observed in Jalgaon Sapkal & Zirpi village highest number of oil engine was recorded in Jalgaon Sapkal, Hisoda Kh. Some village like Zirpi, Jalgaon Sapkal, Pimpri dukri are increased number of oil engine. The number of electric pumps are increased over all selected villages. The maximum number of electric pump was recorded in Jalgaon Sapkal & Ibrahimpur village number of Tractors are increased in Pimpri Dukri, Shewga, Hadgaon Devde, Zirpi, Hisoda Jalgaon Sapkal & Ibrahimpur the period of 2004-05 to 2007-08.

42) Total number of cattle were increased in Shewga, Ramtirth, Pangri, Hisoda Kh & Ibrahimpur in the year 2007-08, 0% to 5% positive change in cattle was observed Shewga (3.83%), Pangri (1.47%), Belora (1.97%), Sawasani (0.29%), Hadgaon Devdi (4.36%) and Ibrahimpur (1.78%) village where as above 5% positive change in total cattle increased in Ramtirth (12.16%) Zirpi (7.45%), Hisoda Kh (8.98%) and Jalgaon Sapkal (7.03%) during the period of 2004-05 to 2007-08. Positive change in buffaloes population was found in Bramhankheda (2.38%) Shewga (2.24%), Sawasani (1.97%), Hadgaon Devde, Zirpi, Hisoda Kh, Jalgaon Sapkal and Ibrahimpur village during the period 2004-05 to 2007-08.

The proportion of bovines was below 50% recorded in Bramhankheda Pimpri dukari, Pangri Bk village, Where as 50% to 70% total proportion of bovines was observed in Devmurti, Ramtirth, Belora, Sawasani, Bharadkheda, Lamanwadi, Hadgaon Devdi & Zirpi, Jalgaon Sapkal village and above 70% proportion of bovines was experienced in Shewga (73.77%) Hisoda Kh (74.69%) and Ibrahimpur (76.30%) during the period of 2007-08.

The parentage of sheep was very low in the study region of the selected villages. Some village are zero percent of sheep. Those village are Pimpri, Shewga, Belora, Sawasani, Zirpi, Bharadkheda, Lamanwadi, Hisoda & Ibrahimpur village.

43) Table no. 7.3 reveals that out of the total net sown area below 10% was recorded under irrigation in Ramtirtha, Pangri, Sawasani, Bharadkheda, Jalgaon Sapkal & Ibrahimpur while 10% to 20% net sown area was found under irrigation in Devmurty, Pimpri dukri, Shewga, Lmanawadi, Devdi Hadgaon, Zirpi, Hisoda
Kh. village and above 20% net sown area was observed under irrigation in remaining selected villages during 2007-08.

44) Positive change was not recorded in forest area in any selected villages. Their forest area was decreased some village like Bramhankheda, Sawasani, Ibrahimpur there has not area under forest. Devmurti Pimpri, Shewga, Ramtirtha, Pangri, Belora, Bharadkheda, Lamanwadi, Devdi Hadgaon, Zirpi, Hisoda and Jalgaon Sapkal village has increased net sown area to some extent, Hence they have shown negative change in forest area between 2004-05 to 2007-08.

Positive change in area not available for cultivation was experienced in Belora (0.61%) & Hisoda (0.24%) village, Where as negative change in this category was found Bramhankheda (2.34%), Devmurti (0.24%), Swasani (1.68%), Pangri (0.36%), Pimpri (0.75%), Shewga (0.15%), Ramtirtha (0.12%), Bharadkheda (0.18%), Lamanwadi (0.24%), Zirpi (2.33%), Jalgaon Sapkal (1.39%) & Ibrahimpur (1.46%) during the period of investigation.

45) Below 4% geographical area was observed under other uncultivable land and follow land in Zirpi (2.64%) Jalgaon Sapkal (0.72%), while 4% to 8% geographical area was under this category was found Devde Hadgaon, Ibrahimpur, Bramhankheda, Devmurti, Pimpri Dukri, Shewga, Ramtirth, Pangri Bk, Belora, Sawasani & Bharadkheda and above 8% geographical area under other uncultivable land & follow land was observed in Lamanwadi (1.28%) and Hisoda Kh. (8.96%) during the period 2007-08.

Out of total geographical area below 90% was found under net sown area in Bramhankheda, Belora, Lamanwadi, Zirpi, Hisoda & Ibrahimpur vilalge. While 90% to 95% geographical area was under net sown area in Devurti, Pimpri dukri, Shewga, Ramtirth, Pangri Bk, Sawasani, Bramhankheda and above 95% geographical area under net sown area was found in Devde Hadgaon (95%) and Jalgaon Sapkal (96.67%) during the period 2007-08.

46) Out of total district only Jalna tahsil have high level of agricultural development. This tahsil is head quarter of district, that is benefit all the facilities are provided surrounding villages. That Partur, Ambad, Bhokardan tahsil were observed in medium development agricultural region during the period 2004-05
and low development region category Jafrabad tahsil was observed, in the period of investigation.

47) Various farmers were interviewed during the period of data collection most of farmer in selected villagers told various problems to me at the time of their interviews.

Selected villages are facing the following problems:

1) Problem of Irrigation
2) Problem of drought
3) Lode Shading
4) Poor techniques of production
5) Discouraging rural atmosphere
6) Inadequate non farm service.
7) Less use of chemical fertilizers
8) Problems of low productivity.
9) Problem of low price
10) Lack of training facilities
11) Problem of overcrowding in agriculture
12) Problem of finance.

### 8.3 Agriculture problem of the study region.

In this part we consider a number of problems of agricultural development. Most of which are linked to the question of agricultural research and training problems associated with the agricultural are numerous do describe all of them in detail, Never the less the most important problem of the study regions agriculture may be mentioned in over to highlight their nature.

1) **Untimely and unequal distribution of rainfall:**

   A untimely and uneducated supply of water is absolutely essential for securing the minimum output from the land, and Jalna district nearly 88.6% net cultivated area is depend on rainfall. This is seldom inadequate and timely throughout the region. Distribution of rainfall is also uneven thought the region.
The rainfall decreased from south to north. The average rainfall of the district is 674.19 mm

2) **Problem of high population pressure on land:**

Physical density of population was increased in every tahsil during the period of twenty five years. This shown that population pressure on net sown area is increased in very tahsil. Below 200 person per hectares physiological density observed in Ambad tahsil, 200 to 250 per hectare physiological density found in Jafrabad & Partur tahsil and Above 250 physiological density of population was experienced in Bhokardan & Jalna tahsil in 2001. These shown that there are heavy burden on soil in all tahsils of the study region.

3) **Soil erosion:**

The problem soil erosion is complicated problem soil erosion various from place to place according to the chapter of the soil, according to the slopes of the ground, according to the vegetation cover, according to the use of soil is being put and according to the nature and the amount of rainfall.

The every shallow and shallow soil has poor water retention capacity, poor fertility and they are valuable to serve soil erosion. There soil do not support to the Rabbi crop at all. In discriminate destruction of forest and uncontrolled grazing in the gentler hill slopes and foot - hill has resulted in concreted hill and galley erosion in many part of hilly tracts. It also is found in Purna & Godavary river basin.

4) **The problem of Sub-division an fragmentation of holding:**

The problem of agriculture holding in Jalna district is two fold. Not only average holding are small but they are also fragmented and are found not in one compact block but in tiny plots scattered all over the village each holding consists of many small pieces which are found in different part of villages.

Causes of small size of holding in Jalna.

i) With every increase in population land gets divided and subdivided among a large number of populations and as a result the size of holding corresponding goes on diminishing of holding.
ii) Growing population by itself need not result in small sized farms. It is the system of inheritance which brings about the division of holding.

5) Discouraging rural atmosphere:

The farmers of selected villages are poor, illiterate, ignorant, superstition, conservative and found by out mode customs and institution such as the caste system. Joint family superstition and belief in fate are the causer which keeps farmers full satisfied with their primitive system of cultivation. Besides they are so poor that they did not have the means to improve their economic condition more of the village is covered by treble people, hence they are not adopting modern techniques of agriculture. This problems is also common problem in Jalna, Partur, Ambad, Bhokardan & Jafirabad tahsils. Most of the farmers are facing various economic problems. Their standard of living is very low as compared to the farmers of in west Maharasthra district.

6) Problem of Drought:

The drought prone area in Jalna covers in entire portion of the district there is uneven distribution of rainfall in the study region. It will be seen from table No. 2.1 that the mean annual rainfall in the study region ranger between 618 mm to 713 mm in Bhokardan & Jalna tahsil respectively. This drought prone affected on the productivity of agriculture crop.

7) Lack of Irrigation:

There are no major irrigation projects but some benefit gets from Jayakwadi project while there are seven medium irrigation projects in Jalna district there are also many minor schemes in the district. These tanks are likely to run dry in summer season most of the medium projects also become dry in summer season. Table no. 3.14 indicates that season Jalna tahsil were recorded (12.11%) highest percentage of net irrigated area to net sown area where the irrigated area percentage of Ambad, Bhokardan, Jafirabad, Partur were 7.14%, 10.01%, 12.26%, 11.37% respectively during 1980-85. During 2000-05 it is increase in minor level Jalna 10.80%, Ambad 11.07%, Bhokardan 12.39%, Jafirabad 14.42%, Partur 7.52% in the period of twenty five year.
8) Problem of Agriculture implements and machinery:

Most of the regions farmers continue to used out molded agriculture implements. Wooden ploughs and bullocks are still used by a majority of farmer. The plough that look like a half open pen knife and just scartcher the soil and hand sickle made for child that a man the old fashioned winnowing try that woos the mind to shift the grains farm the chaft and rude chopper with its west of fodder are under played from their primitive but unmemorable function. Particularly most area farmer are using old and traditional implements.

9) Problem of plants protection:

No systematic quantitative studies have been conducted so far to determine the losses caused by insects, pets and plant diseases in Maharashtra state and the study region. Pest and disease are invariably limiting factor in crop production. Leaf minor and leaf spot diseases in groundnut, Mosaic in horse gram, stembearer and shoot fly in pearl millet, stembearer and blast in rice and stem wevil & white fly in cotton are among the more serious plants protection problem uncounted. It is difficult to calculate the loss due to pernicious weeds in terms to mony, but in the case of server infestation the yield is considerably reduced most of the farmers of the study region are so poor so they are unable to use pesticide to protect their crops diseases. Cotton is first ranking cash crop in the study region but the per hectare yield of cotton is very less.

10) Less use of chemical fertilizers:

About 75% to 80% farmer of selected village told that the price of chemical fertilizers very high and they are not available for a need time, hence they are not using chemical fertilizers on large scale.

11) Problems of use high yielding variety seeds:

Jalna in the study region more over suffers from the application of inadequate and bad seeds. Usually seeds are laid added and kept unprotected for the next sowing season. Thus the seed is badly affected by worms and when sown the resulting plants also turn unhealthy. Sometime, the farmers have to open their seed sector
for consumption and for sowing purpose barrow it from the local grain merchants or Baniya which is bad and unhealthy. There fore the yield of agricultural crop is very low in the various part of study region.

Nearly 65% to 75% farmer of selected village told that the prices of high yielding seeds are very high as compared to the prices of their agricultural products. They are not using H. Y. V. seeds on large scale.

12) Problem of credit facilities and Indebtedness:

Capital parts definite limitation on agricultural practices all agricultural inputs require capital. All the farmers make the decision on the basic of capital available to them the farmers take loan advances for the flowing purposes.

i) Purchase of seed cattle and payment of wages.

ii) The purchase of food, cloth, and other domestic neccessities.

iii) The payment of land revenue and rent.

iv) The financing of social and religious function.

There were 569 primary agricultural co-operative credit societies in the region during 2004-05. In the region 29.22 cores were distributed by the primary credit society table no. 3.6 indicators that the Ambad tahsil has highest numbers of credit societies in the study region.

The farmers borrows loan year after year but they is not a position to clear off the loans either the loan are large or because his output is not large enough to pay off his debt. Therefore, the debt of the farmer goes on increasing this is what is known as rural indebtedness. It is a well knowing saying in country. “The Indian Farmer is born in debt live in debt and dies in debt” The main cause of the indebtedness of farmer his poverty.

Secondly the farmers have a freedoms passion for and desire to make improvement on land, thirdly the farmers are to insure certain type expenditure which automatically leads them to borrowing and indebtedness.

13) Lack of marketing system :

Majority of small farmers sale their produce in the villages. Due to the lack of proper transport & communication high cost and very low marketable surplus in scarcity area. The farmers sale their agricultural produce to village Baniya. The big
size holder who have comparatively large surplus sale their produce in market. Nearly 90% farmer from selected villages of Jalna district told they did not get proper price to their agricultural products. Even though the minimum price of some agricultural products at the reasonable rates.

Following are some of the general constraints observed in the region markets.

i) Forced Sale
ii) Lack of organization of farmers.
iii) Inadequate storage capacity
iv) Superficial middleman and malpractices.
v) Abscene of grading and standardization of agricultural products.
vi) Unauthorized deduction and multiplicity of changes
vii) Lack of prices information regarding.

14) Problem of low productivity:

In general the agriculture productivity in the study region in very low because of traditional practice, lack of irrigation, lack of motivation, poor resource base lake of training centers, less use of chemical fertilizers, pressure the variation in production on land, inadequate knowledge. Further the variation in productivity are very large in different types of farming system prevalent in the area.

15) Problem of training centers:
The regions farmers generally speaking are poor, illiterate, ignorant, superstitions, conservation and found by out modad customs and institution such as the caste system and the joint family superstition and belief in fate are the causes which keep the farmer satisfied with their primitive system of cultivation. These are lack of training and guidance centres. Thus they are unable to train the farmers of Jalna district

16) Problems of agriculture labour:

Agriculture labour is provided mostly by economically and socially backward sections from the tribes also swell their ranks. It may be divided into four types.

i) Landless labour who are attached to the land lord.
ii) Landless labour who are personally independence but who work exclusively for other.

iii) Petty farmers with tiny bits of land who devote most of their time working for others.

iv) Farmer who have economic holding but who have one or more of their sons and dependes working for other prosperous farmers.

Living condition of the agricultural labour households continues to be pathetic. The proportion labour households with monthly per catita expenditure of less Rs. 1000. The vast majority of the agricultural households are below the povertyline. The following important reasons explain low wages and poor economic condition of agricultural labour.

i) Low social status : Most agricultural labour belong to depressed classes which have been neglected for ages. They have been like dumb driven cattle.

ii) Unorganized : Agricultural workers are illiterate and ignorant. They live in scattered villages. Hence, they can not easily be organized in unions.

iii) Seasonal Employment : The agricultural workers do not have continuous work they get work in kharif season in all tahsil of Jalna district.

8.4 Major Suggestions to Solve the Problems :

1) Un-timely and Un-equal distribution of Rainfall:

To solve this problem micro level planning should be done for crop system on the basis of ecological consideration. It is necessary to identify the best cropping system for any local area under the prevailing rainfall and temperature pattern. Many of the well have in sufficient water facilities during late summer early monsoon. Hence efficient utilization of water is needed. Minimum irrigation for field crops needs to be adopted. Similarly drip for field crops need to be adopted. Similarly drip for irrigation system for horticultural crop for optimizing water resources need to be followed. Each and every drop of rain water should percolated in the soil and extra running water should be collected in percolation tanks. Each tahsil might select an area where communications can be so arranged that it is possible for water forecast to reach the cultivator the same day that it is
used. Observation could than be made how this knowledge helps the farmer in timing his agricultural operation.

2) **Soil Erosion:**

In general terms soil erosion is caused by running water from higher to lower levels over the surface of the ground. Soil conservation therefore, means either decreasing or diverting the run off or both. Soil conservation in its midst sense includes not only control over erosion but all those measures like correction of soil defects application of measures and fertilizers, proper crop rotation, irrigation etc. Which aim at maintaining the productivity of the soil at higher level? The following methods should be adopted to control the soil erosion of the study region.

a) Terraces control runoff and reduce erosion.
b) Contour cultivation.
c) Crop rotation
d) Keeping the soil covered
e) Control on grazing land.

Here we do not mean that the animal should not all be allowed to graze but they must be prevailed from over grazing. Over grazing in local grass land must strictly be prohibited.

3) **Problem of high Population pressure:**

To solve this problem following measures should be adopted.

a) A huge frontal attach on population growth is the first and foremost necessary. When we are having so many compulsion in or economic life why not limit the family to our or two children by law using the various well known techniques? This formula should be followed in every tahsil of study region.
b) The population of the rural sector must come down to 50% to 60% every soon.
c) Follow land should be brought under cultivation.
d) Potential agriculture land should be brought under cultivation to food the over population.
e) Intensive cultivation method should be adopted in the study region.
4) **The problem of sub-division and fragmentation:**

The prevalence of sub-division and fragmentation is a hindrance to the use of improved agricultural practice, such as better seeds, use of superior agricultural machinery, construction of wells, fencing of land, protection of crops from pest and improvement of drainage system.

**Remedies for sub-division and fragmentation:**

a) **Creation of economic holding:** One of the important aspects of land reforms in Jalna district is the increase in size of the holding and consolidation of scattered holdings in the study region. To establish economic holding the following measures should be adopted.
   - The fixation of ceiling on holding, so that all those who have more than the prescribed maximum limit in a village will have to surrender. Their surplus land to the public authorities who will then distribute either same among those who have un-economic holding.
   - Those farmer who have extremely small holding may be induced to give up their lands shift to other occupations in rural areas.

b) **Consolidation of holding:**

Consolidation is achieved by first pooling all land in the village into one compact block and then dividing it into compact block among all the farmers in the village.

c) **Co-operative systems:**

According to some authorities as well as Indian Government a permanent solution to the problem of small and fragmented holding is co-operative farming.

5) **Problems of Drought:**

The major trust is to reduce severity of the drought effects. It is there fore necessity to optimize the depleted land resources in conjunction with maximum use of erratic and unsecured water resources will have to be undertaken in the drought prone livestock development etc. Are required to be searched in greater substance. Various percolation tanks should be constructed in the drought prone area being mainly a rain fall tract with large areas under undulating and rolling
topography. There is urgent need to initiate work on watershed development in the zone watershed has to be trusted under new concept of conservation farming. Which means the “use of land according to its equability and treat it according to its need.”

The parentage of literacy should be increased in the study region. The following programmers must be started for the farmers in every tahsil.

- Pre-seasons workshops for the farmers must be organized for two days twice a year before the commencement of the kharif and Rabbi season at regional research studies.
- The refresher courses should be arranged of tahsil level for the farmer.

7) **Lack of Irrigation facilities:**

There is problem of irrigation in summer season in all tahsil of Jalna district. All tahsils have no sufficient irrigation facilities, various percolation tanks, Kolhapuri types bandhare, new medium projects should be started in the various part of district. The following strategy should be adopted in every tahsil.

a) The command area development (ADA) programm in each tahsil transition to irrigated agriculture and option use of water.

b) Installation of sprinkler drip irrigation system in water scare and drought prone area and encouragement to surface water and lift irrigation.

c) The Government should encourage repairs and improvement of minor irrigation tanks as well as the development of new works as a part of the integrated micro development projects.

d) Exploration and exploitation of ground water on a priority basis particularly in the central and western region.

8) **Agricultural Implemented Machinery:**

Most the farmers are using old types of wooden plough and in efficient methods and techniques for the production of various crops, since they are tradition bound and also poor. They have not adopted advance techniques. The farmers should have motivated to used steel ploughs, sugarcane crushers, small pump set, hoes, seed drills and fodder cutters, Increase in production is possible if
proper machineries are used. The rural bank, Co-Operative banks, should have given more loans and subsidies to poor farmers.

9) **Problems Plant Protections:**

The pests and disease which occur during in various stages of growth of a plant are well known, and so are the methods of fighting them. In case of disease, preventive measures assume a routing character and can be taken by the ordinary field stuff with previous training.

Introduction of registrant varieties of crops, changes in rotation time of sowing and planting, deep and shallow cultivation giving or with holding of irrigation are the useful methods, Research should concentrate on developing resistant or tolerant varieties and on an integrated approach in taking many of these problems. Appropriate irrigation scheduled and follow up is also needed. The farmers should have given knowledge of plant disease and use television programmers.

10) **Use of High Yielding Seeds:**

Agriculture in the study region more over suffers from the application of inadequate and bad seeds. Usually seeds are laid added kept unprotected for next sowing season. A number of high yielding varieties of rice, wheat, jowar, maize, bajra, tur, cotton etc. have been introduced. It is necessary to knowledge of high yielding varieties of seeds to the farmers. The Government should have distributed improved seeds to the poor farmer without charging any fees. The improved seeds must be distributed though credit society or Grampancyat to the farmers.

At present it is accepted that need quality is the basis and crucial inpute for attaining sustained growth in agricultural production. Seed is the quarter of new technology to crop production and multiplication. There fore, the farmers should motivated to use high yielding verities seeds.
11) **Less use of Chemical Fertilizers:**

In any scheme for boosting agricultural output, the use of chemical fertilizers has an important role. The fertility of regions soil in deteriorating steadily on account of manure organic waster materials like stubbles and red gram stalks can profitably be used as much during the rabbi season. This increased the production in rabbi sorghum by 25% to 50% deep placement of phosphoric fertilizers in found to be essential for obtaining response of rabbi crops. It is necessary to distribute chemical fertilizer by the state Government to farmers by charging half amount poor farmer must have given adequate lone so that he can use more fertilizer to his field. Government should have organized seminars at every tahsil level for the discussion and guidelines regarding the chemical fertilizers.

12) **Problem of Credit and Finance:**

The problem of rural indebtedness has two aspects and there fore, the solution in also fold. In the first instance, measures may be devised the canceling old debt. Secondly measure should devise to see that fresh borrowing is limited to the minimum necessary and to the productive type. At the same time it is necessary to control the money Lander and regulated his activities. Bank should given more advances to the primary agricultural credit societies:

13) **Lack of Marketing System:**

There are 23 sub-market centres but these are not satisfied some specific rules and regulation are necessary for the traders. The role of Baniya should be in favor of the farmer. In order to have produce the farmer facilities.

a) He should have adequate and deep transport facilities which would enable him to take his the premises of market.

b) He should have adequate and cheap transport facilities which would enable him to take his surplus produce to market rather than dispose it of in the village itself to village many lander at low price.

c) He should have clean information regarding the market conditions as well as about the running prices.
d) The number of intermediaries should be as small as possible so that the middleman’s profits are reduced. This increase reduces to the farmers.

14) **Problem of Training Centers:**

There is need to establish one training and research centre is developed at tahsil level that centre will collect soil samples from every village for analysis. After the proper soil examination report will be given to the concerning farmers. This report will be help to the farmer.

The following training in should be given to the farmer:

a) Training on pest surveillance
b) Training on water management.
c) Improvement of saline and sodic soil.
d) Training on identification of pests and diseases and plant protection measures.
e) Training on pulses and oilseeds production.
f) Training on production technology.

15) **Problem of low productivity:**

In general crop productivity in the drought prone are and dry land area is very low. To solve the problem of low productivity the following measures should be adopted.

a) There is small size holding in the study region. The Govt. of Maharashtra should have adopted land consolidation act effectively. Those farmers who have extremely small holding may be induced to give up their lands and shift to other occupation sin rural areas. The pressure on land may be reduced by the starting of industries in rural areas to provide employment of the landless labours and marginal peasants.

b) Improve seeds can play an important role in increasing productivity. There fore more & more farmer in more an more area should encourage using improved seeds. After examine the soil conditions and available of irrigation facilities in different tahsils of Jalna district, farmer should be advised about what seeds are the best in their field.

c) Use of improved seeds and fertilizers requires proper irrigation facilities. There fore it is necessary to increase irrigated area in the study region.
d) The commercial banks, rural bank, land development bank primary credit societies should given minimum lone advances at low rate to the poor farmers.

16) Problems of Agriculture labours:

There is problem of agricultural labour in all tahsil of the Jalna district. The wages of the agricultural labours should be increased so that they will turn to the agricultural labour in very poor. The following suggestions have been made for the improvement of agricultural labour

a) Better implementation of minimum wages in agriculture.
b) Removal of serfdom.
c) Peasant union for agriculture labour.
d) Rehabilitation of landless agricultural workers.
e) Improvement in agriculture.

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