CHAPTER- VII

SUGGESTION AND CONCLUSION

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7.1 Introduction:

In the previous chapter some aspects of selected villages of five tahsils have been analyzed. Particularly livestock, agricultural implements, general landuse, agricultural landuse and agricultural problems of the selected villages have been discussed in detail. In the second part of the seventh chapter agricultural development regions of the study region discussed.

The main purpose of this chapter is to sum up main conclusions of the study presented in the previous second to seventh chapters to get comprehensive view on the basis of these conclusions. Agricultural problems are also discussed in this chapter. Some remedies or suggestions are suggested to solve the agricultural problems in the following aspects.

7.2 Suggestion:

(1) Agricultural land extension:

There are a number of areas of follows land in Bidar district which can think of this land seriously and can change it into production are limited land and can be brought under agriculture with intensive efforts. Increase in the gross cropped area can be achieved by a reduction of fallows and culturable waste and by increasing multiple cropping.

(2) Conservation of Soil:

The productive capacity of the rainfed area can be increased by undertaking extensive programme of soil conservation in the study area. The problem is very acute where sheet erosions common soil conservation of cultivated land can be achieved by contour ploughing building in the dry zone. That’s why it is necessary to conserve soil.
(3) **Raising the productivity of land**

One cannot expect an increase of production simply extension of cropped area through high yielding varieties. Increases in the productivity can be achieved by the following work schemes. The availability of water at the proper time beass highest correlation with productivity a large-area of the study area in frequently affected by conditions. Expansion of irrigation facilities is needed in the study area.

(4) **Schemes of Supply**

Agriculture is the main source of income. The study area is frequently affected by famine condition. Majority of farmers in the study area have very limited conventional capacity due to low values of productivity and uneconomic holdings. There big farm holders are more capable of adopting improved practices as they can take risk on the part of their holding. The cultivators are becoming increasingly conscious about the use of inputs. The appreciable again though the use of improved practices as they can take risk on a part of their holdings.

(5) **Credit Schemes**

The main institution sources of credit of farmers are the village panchayat, cooperative societies, district co-operative banks, nationalized banks and state and central government, village panchayats and the co-operative societies at village levels have a direct relationship with the implementation of agricultural programmes. Village co-operative is the main agency in supplying credit fertilizers and other inputs and marketing the farmers products.

(6) **Change in the crop distribution**

When irrigated area increased sugarcane cultivation increased in some villages. In some villages in the study area, the area for fruits especially grapes, pomegranates Guvas and vegetables should be extended. It should be developed intensively in the cultivation of fruits.
vegetable and dairy products. They will have a bright future if quick transport facilities and cold storage are provided.

(7) Transport Network Development

Development of any area is product of developed transport network. The small settlement should be connected to the main market centres where the farmers can sell their products. They can use services like bank, health and education and raise their standard of living.

(8) Pesticides

The use of pesticides needs to be made popular in the study area. Pesticides are mostly used in the irrigated area in the study area. Fruit gardens, vegetables and hybrid varieties are mostly essential pesticides.

(9) Dairy Farming

The study area topography and climatic conditions have put limits on the sources of income of farmers. The study area has to depend only on one or two crops in a year, many farmers depend on only one crop in a year. There is little possibility of positive change in the status of farmers unless subsidiary supplemented activities like dairy farming, poultry keeping etc.

(10) Improved Seeds

Yield can be considerably increased in the study area by the use of improved seeds. It is very essential to switch over from interior varieties of seeds to new improved ones. It has been observed in manu field trips that commercial crops have enjoyed the benefits of the improved seeds as well as fertilizers to a greater extent than food crops.

(11) The use of new technology of water supply

Now days, there are many problems creating in raising the agricultural crops because of water shortage. That’s why to provide water in a suitable quantity to the crops in agriculture the use of modern technology in maximum district areas will be helpful in raising the
production of crops and the use of water will be done as needable. So far the economical development of agriculture in district.

(12) **Development of Agro-based Industries**

In the study area based industries like oil mills, food processing should be developed on co-operative basis. These industries not only increase employment potential but also raise the socio-economic status of the study area.

(13) **Better Agricultural Implements & Plant Protection**

Some farmers, pumping sets, power sprayers supplied by Governments. Co-operative societies are providing big tractors, harvesters, power threshers, lift irrigation pumps, pipes etc. Plant protection measures are implemented area little progress has been made in adopting improved agricultural implements in the study area.

(14) **Micro Level Study of Rainfall in the Bidar District**

Micro level planning should be done in all tahsil to solve the problem of untimely and unequal distribution of rainfall for crops system on the basis of ecological considerations. It is necessary to identify the best cropping system for any local area under the prevailing rainfall and climatic conditions.

The farmers should be given training about the drip irrigation. Each and every drop of rainwater should be percolated in the soil and extra running water should be collected in percolation tanks, more and more percolation tanks, Kolhapur type’s bandharas should be constricted in all villages.

(15) **Farmers Field Schools**

The integrated pest control management under the farmers schools has been found as successful and effective medium. It is to organize at least one farmer’s field school under Krushi division in Bidar district. The
efforts taken to increase the productivity of the crops, of the related lowest crops yielding villages from the taluka by the farmers field school.

(16) Increasing Forestation

Today district is facing the problem of deforestation. So forestation should be the need of time on Government level should be planning about tree plantation. According to the total population of district in comparison with tree plantation done an ideal of it should the district present such type of planning Gramsevak and people. To tell the importance of trees boards can be used effectively. In school, college, administrative officer, besides railway routes, roadways, tree plantation should be planned.

Government employees tree plantation should be made compulsory farmers who plant more and more tree in their farm government should give those loans with zero percent and its registration should be available in Talathi office for forest act should be very strict.

(17) Situ Water Conservation

It is expected to take initiative in implementing the water shed development programme to increase the crop production. As most of the land in the district is rain-fed, to try to get the production stability at the places where irrigation facilities are not handy and to try to have the water by the farmers in each village.

The rain-water needs to be stored under the land through the programmes like refilling of the wells, wanrai, tanks, cultivation and seed sowing on contour.

(18) Participation of the Krishi Vidnayan Kendras

It is expected to take maximum advantage of the weekly gatherings of the Krishi Vidnyan Kendras while deciding the programme raising the crop production. To undertake the programmes like micro-planning, farmers-counseling, training to the agri-volunteers, agri-friends and
taking the production raising technology of the doorsteps of the farmers in possible.

(19) **Deciding the availability of the quality agricultural inputs**

The agricultural inputs like seeds, fertilizers, insecticides, implements, biofertilizers, bio-medicines etc. have outstanding importance in the crop production and while campaigning for increase in productivity. Sufficient quantity of agricultural inputs should be available besides this minute observation should be there in the quality of the available seeds, fertilizers and insecticides.

**7.3 Conclusion**

The aforesaid have a strong bearing on landuse and cropping pattern. The general landuse pattern in west is in many ways different from that of east. The west south part of the district has a higher percentage of land not available for cultivation irrigation facility in the western parts have more agricultural land in the overall landuse pattern. Agricultural land is more than of the total geographical area of the district.

The changes in general landuse are the outcome of interactions between the physical factors on one hand and socio-economic factors on other. As such the general landuse pattern of the region is not so stable as there are many spatio-temporal oscillations. Considerable changes in landuse have occurred on the poor lands and the least on the land in their south-west part which have been under irrigation for a long period.

The following important conclusions are drawn from second to seventh chapter.

1) The relief, the district shares, a similarity of topographical arrangements as found in Bidar district. The district is entirely covered by the Deccan trap of tertiary period. The traps are seen generally 618.7 meters. The top layers of the Deccan trap in parts of Bidar and Humnabad
talukas are altered to reddish vesicular laterite, forming extensive undulating plateau.

2) The district however has good and healthy climate, the maximum temperature recorded is 42°C and the minimum is 16.4°C. The average annual rainfall is of 890 mm which is below the state’s average (1130 mm). During the southwest monsoon season relative humidity is high.

3) In Bidar district the development of drainage is very poor, the major streams found in the district are Manjara and Karanja rivers which flow and drain in some part of the northern portion of the district. The rivulets flowing in the district are the Mullamari, the Maniknagar-nala, the Chulki-nala the Madhura-nala, None of them is large enough for navigation. The seasonal floods are not so intense as to cause any havoc.

4) The latertic soils of Bidar plateau occupy 21.7 percent of TGA and distributed in Bidar, Humnabad, Basvakalyan talukas. The plateau can be divided into upper and lower. Lateratic soils of upper plateau is intensively cultivated with sugarcane, groundnut and vegetables.

5) The total forest area of the division is 43592.94 ha. comprising of 4,874.04 ha. of forests 12802.9 of protected ha, forests and 28881.00 ha. of unclassed forests. Most of the RF areas are in Bidar and Humnabad ranges. The forests in Bidar district originally consisted of dry deciduous and scrub type vegetation.

6) The density of population may serve as an index of the pressure of population on the land. It gives a simple quantitative relationship between man and land for a whole taluka. The density of population in the district as in 2001 was 275 persons per sq. kilometer and this was more or less it is coinciding average which was 275 persons per sq. kilometer. This district is thus one of the moderately populated areas of the state.
7) The total number of rural settlements and population in Bidar district was noticed about 599 and 11,57,498 respectively which given an average number of inmates was 1932 per settlement during 2001.

8) The trends of these landuse categories in the region under study table No.3.2 shows. Non-agricultural land in 9.10% in 1999-05 and 10.99% in 2006-11 and the positive changes of 1.89 potential agricultural land 5.80 and 11.82% in 1999-05 and 2006-11, the positive changes of 6.02. Agricultural land in 85.10% in 1990-05 and 77.18% in 2006-11 and the negative changes in -7.92% during the period from 1999 to 2011.

9) Table No.3.7 tahsilwise percentage of net sown area in Bidar district having considered the extent and changes in the net sown area, the next stop is the assess the intensive use of it, which largely depends upon the capability of the farmer with respect to innovations. But in Aurad tahsil, out of net sown area only 5.8 percent area is used twice.

10) Table No.3.8 show the regional variations in these factors individually or collectively lead to the range of values in the distribution of fallow land from below 10 percent to above 20 percent of the total. The high proportion of fallow land is observed in patches especially in Aurad, Bidar and Basvakalyan tahsil of the district providing irrigation facilities can intensively use this area.

11) During the period under investigation the total area involved in changes is 41.85% which is more significant in case of food crops. Besides these generalities, there are spatial variations depending upon rainfall and soil conditions.

12) Jowar is the leading crop of the study area in the region. The main improved varieties grown in the region are the local kharif jowar. The change is jowar area is also noticed in the tahsil. The positive change is observed only in the tahsil Bhalki and Bidar. The negative change is
observed in three tahsils Aurad (1.51), Basvakalyan (-0.11), Humnabad (-0.04%).

13) Table No.4.3 changes in paddy cultivation are also observed in the region out of the five tahsils comprising the tahsil only three tahsil have registered an increase but the proportion of area involved increase ranges from below to above 1 percent. Tahsil of prominent increase are Bidar (1.05%) and Bhalki (0.03%), Basavkalyan is very high decrease tahsil in the district.

14) The farmer’s also utilized chemical fertilizer and pesticides. So the farmer trends to utilize more area of the cultivation of Kharif Bajra crop. Fig.No.4.4 B shows the minimum variation is below two percent found in only two tahsils Aurad (0-57%) and Basvakalyan (-4.72%).

15) Wheat is covered in 1.98 percent in 1999-2005 and 1.62 percent in 2006-11. It is entirely produced as an irrigated crop. It is grown in medium black to deep black soil. The highest percentage of the area under wheat is Basvakalyan (25.97%) in 1999-2005 and (30.28%) in 2006-2011 and the lowest percentage of the area under wheat is Bidar (16.23%), Aurad (19.43%) and Bhalki (16.33%) in 1999-2005.

16) In these tahsils the percentage of area under Maize has also been decreased (Fig.No.4.6 B). The moderate variation is 0 to 10 percent seen in two tahsils i.e. Aurad (-6.41%), Basvakalyan (-9.84%). These tahsils are located at both sides of the river where as the irrigation facilities have been increased between 1999-2005 and the area under maize has slightly been increased.

17) Table No.4.7 shows other cereals are covered 0.11% in 1999-2005 and 0.3% in 2006-2011 with requirement of the different cereals for self sufficiency. It is entirely produced as an irrigated and non-irrigated crop. The lowest percentage of the area under other cereals is Bhalki (3.36%) and highest percentage of Humnabad (49.98%) in 1999-2005, and the
highest percentage of Basvakalyan (52.6%) and lowest percentage of Bhalki (4.4%) in 2006-11.

18) Pulses are used as food and help in increasing the soil fertility to some extent pulses play a significant role in the cropping pattern of the study area. The minimum percentage of the area under total pulses is found at Bidar (12.18%) in 1999-2005 and 2006-2011 it is found at Humnabad (6.48%) where as the maximum percentage of the area under total pulses is at Bhalki (31.05%) in 1999-2005 and in 2006-2011 it is at Bidar (61.78%).

19) Tur is an important pulse crop of the region. It is sown in June-July and harvested in January-February usually it is sown as a mixed crop with groundnut and kharif jowar. It covered 14.35% in 1999-2005 and 15.25% in 2006-2011. Table No.4.9 lowest category of the area under Tur lies below 10% which includes two tahsils in 1999-2005 i.e. Bidar, Humnabad and high category of the area under tur in three tahsils in 1999-2005 i.e. Aurad, Basvaklayn and Bhalki.

20) Gram is used as food and it helps in increasing the soil fertility to some extent gram plays a significant role in the cropping pattern of the study area in the district. Gram is an important foodgrain crop in the study area. If covered 12.98% in 1999-2005 and 8.86 percent in 2006-2011. The high category is found in Bhalki tahsil and low category is Humnabad tahsil in 2006-2011.

21) Sugarcane is the leading cash crop of the region and occupies an important place in the economy of the district Fig.No.4.14 A shows the total changes in sugarcane positive change Aurad (2.3), Bhalki (1.8) and Basvakalyan (1.3) and the negative change in the tahsil of Humnabad (-1.5) and Bidar (-3.9) area under the period from 1999-2005 and 2006-2011.
22) This region also grows fruits viz. mango, banana, guava, tamrind, line, blackberry and graps are pomegranate important local fruit of the region. It covered 0.31% in 1999-2005 and 0.33% in 2006-11. Fig. No.4.15A shows the total changes in fruits are the positive change in Humnabad (10.2), Bidar (3.9) and negative change in Aurad (-2.7) and Basvakalyan (-6.1) of the area under the period.

23) In all total decrease in area under oil seeds are observed during the period under investigation because of its commercial value. Significant increase is occurred in Aurad, Bhalki and Bidar. In other tahsil i.e. Bavakalyan and Humnabad (3 to 6%) decrease in area is observed.

24) The great concentration of groundnut area is in the district. In view of these preferences and also the competition with other crops, the average area of groundnut in the region was 0.27 percent in 2006-2011.

25) The high percentage category of the area under sunflower cultivation lies above 20 percent, which included two tahsils i.e. Aurad and Basvakalyan in 2005 and same area in 2006-2011.

26) In the Bidar district, the modern implements have been popularized from last three decades, therefore the period of the study is from 1999 to 2011.

27) Various types of implement are used for agricultural operations. In which some of them are discussed here. They are broadly divided under the four categories in which one is man operated, second animal operated implements have been discussed in relation to per 1000 hectares of cultivated land.

28) The man operated plant protection equipments have been used for vegetables cultivation for spraying the chemicals. High concentration (Above 100) of plant protection equipments per 100 hectares of cultivated area is confined to Humnabad and Basvakalyan tahsil is where the horticulture crop in Bhalki and Bidar tahsils. The moderate zone of
concentration between 50 to 100 plant protection equipments per 100 hectares of cultivation area is found and low zone concentration i.e. below 50 equipments per 100 hectares area is observed Bhalki tahsil.

29) Wooden plough is a traditional implement which is widely used by the farmers in the district. However, frequent ploughing with wooden plough is adopted for agricultural cultivation as it needs deep ploughing for penetration of root system. Very high concentration i.e. more than 200 ploughs per 1000 hectares of cultivated area is observed in the tahsils viz. Bidar and moderate. Low concentration of wooden ploughs, 100 per 10,000 hectares of cultivated area is found in tahsils of Aurad and Bhalki.

30) Fig. 5.3 shows the number of iron ploughs per 10000 hectares of cultivated area in the district in the year of 2011. Very high density (above 400 iron ploughs per 1000 hectares of cultivated area) is found in Bidar and Basvakalyan tahsils. The low concentration of iron plough is confined in Aurad tahsils.

31) The tractor operated ploughs facilities and deep ploughing as compared to the wooden and iron plough, they are of two types one is mould boald plough and another is disc plough. The use of these ploughs is depending on crop and the type of soils to be tilled. In the 2005 there are about 4460 tractor operated ploughs in the district.

32) Power operated plant protection equipments have been used mainly for horticulture crops and vegetables. The distribution of plant protection equipments various from tahsil to tahsil (Fig.5.9). High and very high density i.e. above 40 equipments per 10000 hectares of cultivated land is observed in the Bidar and Humnabad tahsils where horticulture crops and vegetables being cultivated 30 to 40 equipments per 10000 hectares of cultivated area found in Basvakalyan and Bhalki tahsils.

33) Use of electric pumps, particularly for irrigation purpose is a significance component of physical infrastructure of agriculture in the
region under study. Rural electrification has increased the numbers of electric pumps in the district from 39208 in 1999 to 80252 in 2011.

34) One of the most important component of agricultural development is mechanization of agriculture, which in turn reflects the social, economic background of the region.

35) The analysis of season wise and operation wise use of tractors reveals that along the river belt the use of the tractors, in hours per annum is high as compared to other areas. Based on the spatial analysis the regions three different levels of mechanizations and accordingly three zones can be identified.

36) Forever the development of irrigation facilities, role of co-operatives and overall awareness of farmers to adopt new technological all this has made greater impact on the level of mechanization.

37) Table 6.1 shows that there is potential for further extension of area under forest and grazing. As some 14% area can be used for this purpose which is presently under cultivation, cultivable waste and barren.

38) About 0.6% to 7.9% positive change in irrigation area was experienced in selected villages during the period of five years. Effects of state government, Zilla Parishad and individual farmers are responsible for this positive change. Most of the farmers of the selected villages are poor. Hence they are using bullocks as drought force for agricultural operation. They are unable to use the tractors on large scale for agriculture.

39) About -3.1 to -7.6% negative change in irrigation area was recorded in selected villages forest area was very less in the study region. The net sown area was increased to some extent in some villages hence they have shown negative change in forest area between 1999-2005 to 2006-2011.
40) Hence some villages have shown negative change in net sown area in Kodambal village and positive change in Dapka (C), Santpur, Halbarga, Khatak Chincholi, Bagdal and Manahalli villages. Positive change in the net sown area from the period of 2005-06 to 2010-11.

41) Selected villages are facing various agriculture problems like irrigation, drought, poor techniques of production discouraging rural atmosphere, less use of chemical fertilizer, high yielding variety seeds, low market price of agricultural goods, lack of training facilities etc. It is necessary to solve these problems. So that agricultural economy of the selected villages can be improved in near future.

42) Some tahsils have recorded high level of agricultural development in the study region as they have more favourable physical and non physical environment.