4.1 Introduction

In the present chapter study has been made to analyze and interpret general landuse and cropping pattern of the study area. In human life every inch of land is very important, because land is a basic natural resource of human society. Every development depends upon land resources. In India worlds 2.4% land is available and 16% of the world’s population has been living in our country. It is a totally imbalanced distribution, so every inch of land should be used for any purpose with a proper way. Its utilization shows a reciprocal relationship between the prevailing ecological condition of a particular region and man. Land-use is the surface utilization of all developed and vacant land on specific point, at a given time and space. As a matter of fact geography deals with the spatial relationship between this aspect and planning. This is because the land-use changes to meet the variable demand for the land by the society in its new ways and conditions of life. The demand for new uses of land may be inspired by a technological change. Some changes are short lived, whereas, others represent a more constant condition.

4.2 Meaning and importance of Landuse

Geographically, land has been regarded as the specific areas of the Earth surface. It is by far the most important asset of the nation and from the earliest time man has used it to satisfied his multiple needs. Land-use is a primary indicator of the extent and degree to which man has modified the land resources. It is the manifestation of the impact that man has made on ecology, through which the development is insured.

Land-use is the use actually made of any particular use of land; house, apartments and industrial location are land-use categories, whereas the firms, residential, industrial and agricultural refer to the system of land utilization implying roads, neighborhood retail and service activities as well as location of industries and the carrying of agricultural pursuit. In a rural area, tree crops or row crops would identify land-use; whereas herding, truck farming and grazing indicate a system of land utilization. The term ‘land utilization’ is also used for varied utilization of land
and soil surveys e.g. land under cultivation, pasture, barren, orchard, fallow waste, cultivable waste, settlements, forests and water bodies. According to J. L. Buck “Land Utilization is the satisfaction which farm population derives from the type of agriculture developed the provision for future production and contribution to national needs”. While the definition given by Salter is, “land utilization research can be described as dealing with the problem situations in which people in a given locality are in the process of transformation from activities with certain land requirements to activities with different land requirement.

Land-use pattern is a key to understand geographical adjustment of agricultural resources (Balak Ram and Joshi 1984). Land-use study in its spatial context is essential to understand regionalization of the areas of optimum land-use. (Shinde S. D.) Land-use studies are important as they are aimed to explain the occurrence of different uses in different areas. Land-use in which human efforts are applied to the land resources for the satisfaction of human needs is important. It is essential to understand the variation in the land-use as a human reaction & the satisfaction of human wants.

In shortly, Landuse means use of land for different purpose. It is a combined result of the natural setup and human dynamism within socio economic setup and technological development. Physical limitation of the site finds a direct expression in land-use.

4.3 General Land-Use

Land-use is an important aspect of studies in agricultural geography and for making the study of land-use, it is classified into different categories. The concept of land-use has been used in so many ways that no generally accepted scheme of classification exists, despite many years of land-use studies by geographers. In most of such schemes, activity on the land has been the major criterion for classifying land-use which is an essential qualitative rather than quantitative variable. Several scholars have used the concept in many ways. Therefore, there is no generally accepted scheme of quantitative rather than qualitative variables. Land classification is based largely on quantity and intensity of the use of land (Ali Mohammad 1978). Census of India has classified land utilization in nine different categories, but in the present study they have been grouped into five major relatively significant categories.
**General Land-use Classification**

*Nine Fold Classification*

1. Forest
2. Land put to Non-agricultural uses
3. Barren Land uncultivable land
4. Permanent Pastures & other Grazing land
5. Miscellaneous tree crops and Groves, not included in the area sown
6. Cultivable waste
7. Fallow land, other than Current fallow
8. Current follows
9. Net Sown area

*Five Fold Grouped Classification*

1. Forest
2. Non-agricultural Land
3. Potential Land
4. Fallow land
5. Cultivated area

This chapter proposes to examine the general land-use pattern of the district with the help of the area data from the census handbooks of the district. Land-use statistical figures for the reference period 1990/91 to 2004/05 have been abstracted from the socio-economic review and district statistical abstract, prepared by the Bureau of Economics and Statistics, Government of Maharashtra, Mumbai. Taluka-level statistical figures have been used for analyzing the temporal and Spatial patterns of general land-use and changes there in.

**4.3.A. Temporal variations in landuse**

Temporal variation means the change in general landuse pattern in a given period of time. The temporal variations in landuse pattern in the DZSD have been studied for a period of about three decades (i.e. 1980 to 2005) and to find out nature of change, and possible causes for this change in study area.

**Table - 4.1**

DZSD : General Land-use & Change *(area in Hect.)*

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Land-use category</th>
<th>1989-90 (area)</th>
<th>% to total</th>
<th>2009-10 (area)</th>
<th>% to total</th>
<th>Change (area)</th>
<th>% to total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Forest</td>
<td>31100</td>
<td>4.32</td>
<td>31519</td>
<td>4.38</td>
<td>+419</td>
<td>+ 0.06</td>
</tr>
<tr>
<td>2</td>
<td>Non agriculture land</td>
<td>57900</td>
<td>8.06</td>
<td>65756</td>
<td>9.15</td>
<td>+7856</td>
<td>+ 1.10</td>
</tr>
<tr>
<td>3</td>
<td>Potential land</td>
<td>33000</td>
<td>4.59</td>
<td>54574</td>
<td>7.59</td>
<td>+21574</td>
<td>+ 2.99</td>
</tr>
<tr>
<td>4</td>
<td>Fallow land</td>
<td>81200</td>
<td>11.30</td>
<td>26277</td>
<td>3.66</td>
<td>-54923</td>
<td>- 7.76</td>
</tr>
<tr>
<td>5</td>
<td>Cultivated area</td>
<td>514500</td>
<td>71.72</td>
<td>540741</td>
<td>75.22</td>
<td>+26241</td>
<td>+ 3.61</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>718600</td>
<td>100</td>
<td>718867</td>
<td>100</td>
<td>+267</td>
<td>-</td>
</tr>
</tbody>
</table>

**Source:** - The Socio-economic Abstract of Sangli District 1989-90, 2009-10.

Table No 4.1 shows that the lowest area is under the forest (4.32 %) in reference year 1989-90. But it is very slightly (+ 0.06 %) increased in the investigation period.
DZSD
General Landuse Pattern

Fig-4.1
The share of potential land is 4.59 percent to total geographical area in 1989-90. It is increasing 2.99 percent. The non-agriculture lands capture 8.06 percent area in DZSD. Due to the economic development, it is increased only 1.10 percent. As per reference year 1989-90, the fallow land is 11.30 percent, but it is decreasing 7.8 percent. The cultivated area of DZSD was 71 percent in 1989-90, but it increased 3.61 percent during study period. Therefore, the temporal change of DZSD suggest that the fallow land is decreased near about 8 percent, but it is replaced by agriculture is only 3.61 percent.

4.3.B. Spatial variations in landuse pattern

The spatial pattern of landuse in the Thane district is the result of interaction between physical environment and socio-economic environment but the impact of local and regional factors is clearly evident from the landuse patterns. Besides these factors, amount of rainfall, nature of relief and land, distance from ocean coast etc. has influence on the types of lanuse in the region. The overall landuse has been categorized into different sub types on the basis of recommendations made by Food and Agricultural Department, Government of India. The spatial distribution has studied for Sangli district for the categories, namely, Net sown area, Land not available for cultivation, Cultivable waste, Fallow land and Forest.

A. Forest

Forest includes all areas actually under forests whether state owned or private and classified or administrated as forests under any legal enactment dealing with the forest. The distribution of forest lands in the study region is as shown in Table 4.2 and Fig 4.2. In the year 2009-10 all the talukas had low area under forest and it occupies
about 4.32 percent of the total geographical area of the district. There are remarkable variations at taluka level low proportion under forest (below 3 percent) in K.Mahankal, Miraj, Atpadi tahsil and moderate proportion (3 - 6 %) of area under forest can be found in Tasgaon and Jat tahsil. High percentage (above 6%) of forest can be found in only Khanapur tahsil.

Table - 4.2
DZSD : Forest Area & Change (area in Hect.)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Tahasils</th>
<th>1989-90</th>
<th>% to total</th>
<th>2009-10</th>
<th>% to total</th>
<th>Change</th>
<th>% to total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Khanapur</td>
<td>11200</td>
<td>8.45</td>
<td>10936</td>
<td>8.24</td>
<td>-264</td>
<td>- 0.21</td>
</tr>
<tr>
<td>2</td>
<td>Atpadi</td>
<td>2000</td>
<td>2.29</td>
<td>2314</td>
<td>2.65</td>
<td>+314</td>
<td>+ 0.36</td>
</tr>
<tr>
<td>3</td>
<td>Tasgaon</td>
<td>5000</td>
<td>4.50</td>
<td>4961</td>
<td>4.46</td>
<td>-39</td>
<td>- 0.04</td>
</tr>
<tr>
<td>4</td>
<td>Miraj</td>
<td>1000</td>
<td>1.08</td>
<td>1079</td>
<td>1.16</td>
<td>+79</td>
<td>+ 0.08</td>
</tr>
<tr>
<td>5</td>
<td>K. Mahankal</td>
<td>600</td>
<td>0.84</td>
<td>924</td>
<td>1.31</td>
<td>+324</td>
<td>+ 0.44</td>
</tr>
<tr>
<td>6</td>
<td>Jath</td>
<td>11300</td>
<td>5.02</td>
<td>11305</td>
<td>5.03</td>
<td>+05</td>
<td>+ 0.01</td>
</tr>
<tr>
<td></td>
<td>Total DZSD</td>
<td>31100</td>
<td>4.32</td>
<td>31519</td>
<td>4.38</td>
<td>+419</td>
<td>+ 0.06</td>
</tr>
</tbody>
</table>


The large scale variation is not marked in the pattern, the region has undergone some small changes in the forest cover. Only in Khanapur and Jat Tahsil, it is increased near about 0.3 to 0.4 percent to geographical area, other wise it is stable or decreased in DZSD. It clearly shows that the strong decision may not be taken about the increasing forest area.
DZSD
Percentage of Area Under Forest

A
Year 1989-90
INDEX
- Below 04
- 04 to 08
- Above 08

B
Year 2009-10
INDEX
- Below 04
- 04 to 08
- Above 08

C
Change
INDEX
Increase
- Below 01
- Above 01
Decrease
- Below 01
- Above 01

Fig. 4.2
B. Non Agriculture Land

Non Agriculture Land include the land put to non agriculture use, barren and cultivable waste land. Area under non agriculture uses comprises the area under settlement, roads, railways, embankments, canals, tanks and burials etc. whereas barren and uncultivable lands are those covered by barren out crops of rocky hills, swamps silted lands, old quarry pits, deserts, river beds, etc. In other words this is land which can not be brought under cultivation.

Table - 4.3

DZSD: Non Agriculture Land & Change (area in Hect.)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Tahasils</th>
<th>1989-90</th>
<th>% to total</th>
<th>2009-10</th>
<th>% to total</th>
<th>Change</th>
<th>% to total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Khanapur</td>
<td>9500</td>
<td>7.16</td>
<td>13324</td>
<td>10.01</td>
<td>+3824</td>
<td>+ 2.85</td>
</tr>
<tr>
<td>2</td>
<td>Atpadi</td>
<td>8900</td>
<td>10.20</td>
<td>10602</td>
<td>12.16</td>
<td>+1702</td>
<td>+ 1.96</td>
</tr>
<tr>
<td>3</td>
<td>Tasgaon</td>
<td>9100</td>
<td>8.18</td>
<td>10076</td>
<td>9.06</td>
<td>+976</td>
<td>+ 0.88</td>
</tr>
<tr>
<td>4</td>
<td>Miraj</td>
<td>5400</td>
<td>5.85</td>
<td>10910</td>
<td>11.78</td>
<td>+5510</td>
<td>+ 5.93</td>
</tr>
<tr>
<td>5</td>
<td>K. Mahankal</td>
<td>9800</td>
<td>13.86</td>
<td>11647</td>
<td>16.48</td>
<td>+1847</td>
<td>+ 2.62</td>
</tr>
<tr>
<td>6</td>
<td>Jath</td>
<td>15200</td>
<td>6.76</td>
<td>9197</td>
<td>4.10</td>
<td>-6003</td>
<td>- 2.66</td>
</tr>
<tr>
<td></td>
<td>Total DZSD</td>
<td>57900</td>
<td>8.06</td>
<td>65756</td>
<td>9.15</td>
<td>+7856</td>
<td>+ 1.09</td>
</tr>
</tbody>
</table>


About 8.06 percent of area belongs to this category in 1989-90 which is slightly (1.09%) increased in investigation period. There are notable variations in the distribution of land under these categories. K.Mahankal tahsil ranks first (16.48 percent) in the area under this category, followed by Atpadi (12.16 percent), Miraj (11.78 percent) and Khanapur (10.01 percent) in 2009-10.
Jath and Tasgaon tahsil have substantial proportion (4 to 9 percent) of area under this category. Non-uniform pattern of change in the land under this category is observable in the distribution of area involved in the period from 1989-90 to 2009-10. High increase in the area under this category has been found in Miraj (5.93 percent). Significant (above 2 %) increase is observed in Khanapur and K.Mahankal tahsil. To the other end decrease area under this category is confined to Jath (2.66 percent). Remaining tahasils come under positive change, but to small extent.

C. Potential Land

The term potential broadly means something existing but not yet fully exploited. The land reserved for the purpose of extension of the cultivation can be found only in this category, the land which could be used for cultivation but it has not been cultivated owing to certain reasons. It generally consists of 1) uncultivable wasteland 2) permanent pastures and grazing land and 3) miscellaneous tree crops and growers. Cultivable waste land includes the land which can be brought under cultivation for some time but which has not been cultivated successively for more than 5 years. The category of land under miscellaneous tree crops includes land under caesura trees, grass, bamboo bushes or other trees used for fuel. Actually this land is put to some agriculture use but the aerial extent of it is not included in the category of net sown area.

The spatial distribution represented in Fig 4.4 varies from under 2 to over 14 percent in 2009-10. Significantly high (above 10 percent) of potential agricultural land embrace Khanapur and Atpadi tahsil. This is mainly due to adverse climatic conditions and physical handicaps. A coverage of 5 to 10 percent may be observed in the talukas of Tasgaon, K.Mahankal and Miraj tahasils.

### Table - 4.4

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Tahasils</th>
<th>1989-90</th>
<th>% to total</th>
<th>2009-10</th>
<th>% to total</th>
<th>Change</th>
<th>% to total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Khanapur</td>
<td>2800</td>
<td>2.11</td>
<td>18710</td>
<td>14.11</td>
<td>+15910</td>
<td>+12.00</td>
</tr>
<tr>
<td>2</td>
<td>Atpadi</td>
<td>10200</td>
<td>16.36</td>
<td>11554</td>
<td>13.25</td>
<td>+1354</td>
<td>-3.11</td>
</tr>
<tr>
<td>3</td>
<td>Tasgaon</td>
<td>3600</td>
<td>3.23</td>
<td>7994</td>
<td>7.19</td>
<td>+4394</td>
<td>+3.96</td>
</tr>
<tr>
<td>4</td>
<td>Miraj</td>
<td>4900</td>
<td>5.31</td>
<td>5850</td>
<td>6.32</td>
<td>+950</td>
<td>+1.01</td>
</tr>
<tr>
<td>5</td>
<td>K. Mahankal</td>
<td>2700</td>
<td>3.82</td>
<td>4741</td>
<td>6.71</td>
<td>+2041</td>
<td>+2.89</td>
</tr>
<tr>
<td>6</td>
<td>Jath</td>
<td>8800</td>
<td>3.92</td>
<td>5725</td>
<td>2.55</td>
<td>-3075</td>
<td>-1.37</td>
</tr>
<tr>
<td></td>
<td>Total DZSD</td>
<td>33000</td>
<td>4.59</td>
<td>54574</td>
<td>7.59</td>
<td>+21574</td>
<td>+3.00</td>
</tr>
</tbody>
</table>

Rest of the talukas have merge land (under 5 percent) available for future extension under cultivation. Potential agriculture land slightly increased from 33000 hect. in 1980-81 to 54574 hect. in 2009-10. The regional distribution of change in potential agriculture land as depicted in Fig 4.4 appears to very uneven. Sizable increase (over 4 %) are confined to Tasgaon tahsil. They may be due to the increase in village grazing lands or common lands and area under tree crops and secondly due to natural hazards. While the increase in land in talukas of Tasgaon and K.Mahankal is 2 to 4 percent. Striking decrease in (below 4 %) are confined to Atpadi and Jath tahsils. This is mostly due to proportion of potential agriculture land which has gone non agriculture land and agriculture land.

D. Fallow Land

The term fallow land is applied to land, not under cultivation at the time of reporting, but which had been under cultivation in the past. The fallow land includes current fallow land and older fallow land, which are largely found due to inadequate water supply or excess of moisture supply, extensive holding and heavy clayey soils difficult for tilling at proper time. Some times, they are kept fallow for preserving fertility and to prevent soil exhaustion. Thus, efficiency of fallow land system in preserving fertility and maintaining crop yields to be acknowledged. The fallow land may be divided into two groups, i.e.

a) Current Fallow Land: - Land lying fallow during the current year only or the land which was uncultivated in the previous year is known as the current fallow land. The main reason of fallow land is scarcity of water, unfavorable climate, farmer’s poverty and quarrels between two farmers.

b) Other Fallow land: - Lands lying fallow for more than one agricultural year but less than five agricultural years. The area which is uncultivated more than one to five years is known as other fallow land.

Table - 4.5

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Tahasils</th>
<th>1989-90</th>
<th>% to total</th>
<th>2009-10</th>
<th>% to total</th>
<th>Change</th>
<th>% to total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Khanapur</td>
<td>1900</td>
<td>1.43</td>
<td>2290</td>
<td>1.72</td>
<td>+390</td>
<td>+ 0.29</td>
</tr>
<tr>
<td>2</td>
<td>Atpadi</td>
<td>2100</td>
<td>2.40</td>
<td>1427</td>
<td>1.63</td>
<td>-673</td>
<td>- 0.77</td>
</tr>
<tr>
<td>3</td>
<td>Tasgaon</td>
<td>5800</td>
<td>5.22</td>
<td>8442</td>
<td>7.59</td>
<td>+2642</td>
<td>+ 2.37</td>
</tr>
<tr>
<td>4</td>
<td>Miraj</td>
<td>4700</td>
<td>5.09</td>
<td>2048</td>
<td>2.21</td>
<td>-2652</td>
<td>- 2.88</td>
</tr>
<tr>
<td>5</td>
<td>K. Mahankal</td>
<td>11600</td>
<td>16.40</td>
<td>1939</td>
<td>2.74</td>
<td>-9661</td>
<td>- 13.66</td>
</tr>
<tr>
<td>6</td>
<td>Jath</td>
<td>55100</td>
<td>24.52</td>
<td>10131</td>
<td>4.51</td>
<td>-44969</td>
<td>- 20.01</td>
</tr>
<tr>
<td>Total DZSD</td>
<td></td>
<td>81200</td>
<td>11.30</td>
<td>26277</td>
<td>3.66</td>
<td>-54923</td>
<td>- 7.64</td>
</tr>
</tbody>
</table>

DZSD
Percentage of Area Under Potential Land

Year 1989-90
INDEX
- Below 05
- 05 to 10
- Above 10

Year 2009-10
INDEX
- Below 05
- 05 to 10
- Above 10

Change
INDEX
Increase
- Below 05
- Above 05
Decrease
- Below 05
- Above 05

Fig. 4.4
DZSD
Percentage of Area Under Fallow Land

Year 1989-90

INDEX
- Below 05
- 05 to 10
- Above 10

Year 2009-10

INDEX
- Below 02
- 02 to 04
- Above 04

Change

INDEX
Increase
- Below 05
- Above 05
Decrease
- Below 05
- Above 05

Fig. 4.5
16KM SCALE 0 16KM
DZSD has a substantial proportion of fallow with an average of 11.30 percent for the reference year 1989-90 and it is largely (7.64%) decreased in the reference year 2009-10. The decay of fallow lands influenced either by growing population pressure on land, modernization of agriculture or development in irrigation facilities. The regional variation in these factors individually or collectively loads to range of values in distribution of fallow land from under one percent to over seven percent of the total. The high proportion (above 4%) of fallow land is observed in Tasgaon and Jath tahsils. The moderate (2 to 4%) fallow land area captures by K.Mahankal and Miraj tahsils.

The lowest (below 2%) fallow land defined in remaining part of DZSD. The large variation observed in fallow land during investigation period. The high share (above 10%) of fallow land decrease in K.Mahankal and Jath tahsil dominantly due to population pressure and no other option towards the people expect agriculture. While small fallow land (below 5%) decrease in Miraj and Atpadi tahsil. Rest of tahsil’s of DZSD fallow land increased in small scale (below 5%) show in Fig 4.5.

E. Net Sown Area

The area under food crops, cash crops and fodder crops is included under net sown area category. Net sown area represents the actual net sown area during an agriculture year. The environmental factors directly affect agriculture land-use or net sown area. Traditionally agriculture is practiced intensively on a large scale.

Table 4.6 and Fig 4.6 exhibits the regional variation in the share of net sown area. The extent of net sown area in the DZSD has changed over the 30 years from merely 515400 hect. during 1989-90, it rose to about 540741 hect. in during 2009-10.

The most direct explanation of the changes in the net sown area can of course be had by reference to the percentage change in the fallow land, intensity of irrigation, population pressure and the improvements in the method of farming. In 2009-10 the highest net sown area is observed at Jath tahsil (83.81 percent) and lowest has identified at Khanapur tahsil (65.87 percent) in study area. In Miraj tahsil having more than 78.53 percent net sown area. Remaining tahsils in study area have 70 to 75 percent net sown area.
The net sown area in DZSD has increased by 3.50 percent from 1989-90 to 2009-10. Maximum increase is recorded in Jath tahsil (24.05 percent) followed by K.Mahankal (7.70 percent). These tahsils are, namely, Khanapur (14.96 percent), Tasgaon (7.15 percent), Miraj (4.13 percent) and Atpadi (3.10 percent).

Table - 4.6
DZSD: Net Sown Area & Change (area in Hect.)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Tahsils</th>
<th>1989-90</th>
<th>% to total</th>
<th>2009-10</th>
<th>% to total</th>
<th>Change</th>
<th>% to total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Khanapur</td>
<td>107100</td>
<td>80.83</td>
<td>87342</td>
<td>65.87</td>
<td>-19758</td>
<td>- 14.96</td>
</tr>
<tr>
<td>2</td>
<td>Atpadi</td>
<td>64000</td>
<td>73.39</td>
<td>61274</td>
<td>70.29</td>
<td>-2726</td>
<td>- 3.10</td>
</tr>
<tr>
<td>3</td>
<td>Tasgaon</td>
<td>87700</td>
<td>78.86</td>
<td>79786</td>
<td>71.71</td>
<td>-7914</td>
<td>- 7.15</td>
</tr>
<tr>
<td>4</td>
<td>Miraj</td>
<td>76300</td>
<td>82.66</td>
<td>72737</td>
<td>78.53</td>
<td>-3563</td>
<td>- 4.13</td>
</tr>
<tr>
<td>5</td>
<td>K. Mahankal</td>
<td>46000</td>
<td>65.06</td>
<td>51422</td>
<td>72.76</td>
<td>+5422</td>
<td>+ 7.70</td>
</tr>
<tr>
<td>6</td>
<td>Jath</td>
<td>134300</td>
<td>59.76</td>
<td>188180</td>
<td>83.81</td>
<td>+53880</td>
<td>+ 24.05</td>
</tr>
<tr>
<td>Total DZSD</td>
<td></td>
<td>515400</td>
<td>71.72</td>
<td>540741</td>
<td>75.22</td>
<td>+25341</td>
<td>+ 3.50</td>
</tr>
</tbody>
</table>


This decline is a result of conversion of agricultural land into commercial or non-agricultural use.

4.4 Agriculture Landuse
Agricultural landuse means the extent of the gross cropped area under various crops during the agricultural year. The cultivated area is known as net sown area, which is also known as agriculture land. In short agriculture land-use means a cropping pattern or the proportion of area under various crops at a point of time.
It is essential to evaluate the agricultural landuse for the individual crop in order to understand crop pattern and growth. Agricultural landuse pattern in any region depends on socio-economic, physical and climatic conditions.

The crops are generally classified as food crops and non food crops. According to some agricultural economist’s a cropping pattern means the proportion of area under various crops at a point of time. In the DZSD’s over all cropping pattern food crops occupy the largest area (470263 hect.) in 1989-90 which is about 91.20 percent of the total cropped area.

But in 2009-10, it is deceased near about 7.81 percent. Among the food crops, cereals capture largest area (62.46 percent) followed by pulses (13.55), sugarcane (2.98 percent) and fruit (2.96 percent). All food crops area decreasing expect fruit crops. The main reason of increasing fruit crops are : they need low water, planted in shallow soil, new method of irrigation, etc. Non food crop area was 8.75 percent to total cropped area in 1989-90, but it is 16.57 percent in 2009-10. Amongst the non food crops, oil seeds occupy dominant place (14.80 percent).

It has increased 7.58 percent during the study period. But other non food crops are insignificant in cropping pattern of study area.
DZSD
Agriculture Landuse

Fig. 4.7
4.4. A. Food Crops
The existing overall cropping pattern and the trend therein are tabulated in Table. In the region’s overall cropping pattern, food crops occupy largest area (451088 hectares) which is about 83.43 percent of the total cropped area in 2009-10. The cereals, pulses, sugarcane, vegetables and fruits are in food crops. However the food crops are divided into major groups; Food Grain and Nonfood Grain.

4.5. A.1. Food Grain
Food grains play a major role in the cropping of land under tillage in DZSD. This is mainly due to their importance both as grains for human beings and straw for environment prevailing in the region. For only, under food grains can they produce enough to sustain the dense population in the study region. Moreover, food grain crops are relatively less demanding and less exacting in their soil moisture requirements than fiber crops.

i. Cereals:
Inferior cereals survive well in areas having poor soils while the superior cereals are raised in fertile soils. Cereals such as Jowar, Bajara, Rice, Wheat and Maize are of much importance among food grain crops. They are both of superior and inferior quality. Jowar, Wheat and Bajara are the major cereals of the region, whereas maize, Vari and rice are the minor crops in the over all cropping pattern of DZSD.

The spatial and temporal changes that occurred in cereals distribution during the period under investigation is shown in Table 4.9 and Fig 4.8. Jawar and Maize are major cereals of the region. Where as Bajara, Wheat are minor crops in over all cropping pattern of the region.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Tahasils</th>
<th>1989-90</th>
<th>% to NSA</th>
<th>2009-10</th>
<th>% to NSA</th>
<th>Change</th>
<th>% to NSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Khanapur</td>
<td>61088</td>
<td>57.04</td>
<td>60948</td>
<td>56.90</td>
<td>-140</td>
<td>+12.84</td>
</tr>
<tr>
<td>2</td>
<td>Atpadi</td>
<td>40938</td>
<td>63.97</td>
<td>33768</td>
<td>55.10</td>
<td>-7170</td>
<td>-8.87</td>
</tr>
<tr>
<td>3</td>
<td>Tasgaon</td>
<td>52629</td>
<td>60.01</td>
<td>52004</td>
<td>65.17</td>
<td>-625</td>
<td>+ 5.16</td>
</tr>
<tr>
<td>4</td>
<td>Miraj</td>
<td>40228</td>
<td>52.72</td>
<td>43910</td>
<td>60.37</td>
<td>+3682</td>
<td>+7.65</td>
</tr>
<tr>
<td>5</td>
<td>K. Mahankal</td>
<td>36245</td>
<td>78.79</td>
<td>34988</td>
<td>68.05</td>
<td>-1257</td>
<td>-10.74</td>
</tr>
<tr>
<td>6</td>
<td>Jath</td>
<td>99956</td>
<td>74.42</td>
<td>111981</td>
<td>59.50</td>
<td>+12025</td>
<td>-14.92</td>
</tr>
<tr>
<td></td>
<td>DZSD</td>
<td>331084</td>
<td>64.23</td>
<td>337609</td>
<td>62.44</td>
<td>+6525</td>
<td>- 1.79</td>
</tr>
</tbody>
</table>

These cereals crops gain some local significance but for the most part they remain unimportant.
Jointly all cereals crops occupy 337609 hect. (amounting to 62.44 % to NSA) in 2009-10. However, the highest cereals crops cultivated in Jath Taluka i.e. 111981 hect. (Amounting 59.50 % to NSA) and lowest in Atpadi and they capture 33768 hect. The share of cereals in NSA is highest in K.Mahankal (68.05 %) and lowest in Atpadi (55.10 %).

During the investigation period, the most noticeable change is observed in cereal crops in study region. the area under cereal crops increased near about 6525 hectares. But the share of cereals crops in NSA is decreased the amount of 1.79 percent. Khanapur (12.84%), Miraj (7.65 %) and Tasgaon taluka (5.16%) has sown positive change and Jat(14.92%), K.Mahankal (10.74 %) and Atpadi (8.87 %) has observed negative change.

ii. Pulses

Pulses are very useful in many ways. They serve as excellent nutrition food and increase the fertility of the soil. They are grown both as kharif and rabi crop. The soil and moisture requirements vary from pulse to pulse but generally they need less moisture and most of them are rainfed. Pulses are the main source of protein in Sangli district.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Tahasils</th>
<th>1989-90</th>
<th>% to NSA</th>
<th>2009-10</th>
<th>% to NSA</th>
<th>Change</th>
<th>% to NSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Khanapur</td>
<td>17292</td>
<td>16.14</td>
<td>19490</td>
<td>22.31</td>
<td>+2198</td>
<td>+ 6.17</td>
</tr>
<tr>
<td>2</td>
<td>Atpadi</td>
<td>6568</td>
<td>10.26</td>
<td>6824</td>
<td>11.14</td>
<td>+256</td>
<td>+ 0.88</td>
</tr>
<tr>
<td>3</td>
<td>Tasgaon</td>
<td>13306</td>
<td>15.17</td>
<td>15184</td>
<td>19.03</td>
<td>+1878</td>
<td>+ 3.86</td>
</tr>
<tr>
<td>4</td>
<td>Miraj</td>
<td>10329</td>
<td>13.53</td>
<td>12385</td>
<td>17.03</td>
<td>+2056</td>
<td>+ 3.50</td>
</tr>
<tr>
<td>5</td>
<td>K. Mahankal</td>
<td>5272</td>
<td>11.46</td>
<td>7007</td>
<td>13.63</td>
<td>+1735</td>
<td>+ 2.17</td>
</tr>
<tr>
<td>6</td>
<td>Jath</td>
<td>23093</td>
<td>17.20</td>
<td>12392</td>
<td>6.59</td>
<td>-10701</td>
<td>- 10.67</td>
</tr>
<tr>
<td></td>
<td>DZSD</td>
<td>75860</td>
<td>14.72</td>
<td>73282</td>
<td>13.55</td>
<td>-2578</td>
<td>- 1.17</td>
</tr>
</tbody>
</table>

Pulses rank third in DZSD. It accounts for 13.55 percent to the net sown area (73282 hectares) in the study area in 2009-10. The chief pulses grown in study area are gram, mug, udid, masur, tur etc. The highest pulses area (22.31%) is observed in Khanapur Tahsil and lowest (6.59%) in Jath tahsil. The area under pulses has decreased (1.17 %) in the period of investigation. The highest positive change (6.17 %) is observed in Khanapur Tahsil. The negative change (10.67%) is observed in only Jath Tahsil. Indicates of area under all pulses indicates up and down in the study area. During the entire tahsil the slight increase in area under total pulses has been observed in DZSD.

4.4.A.2. Non-Food Grains

Sugarcane, fruits and vegetables are including this category. The non-food cultivation is large source of economic farmers in the study region. The area of non-food grains is 12.29 percent of the agricultural area in period of 1989-90. During the investigation period the oilseeds area decreased tremendously. The area under non-food grains is 7.43 percent of the agricultural area in the year 2009-10.

i. Sugarcane

The sugarcane plant is classified under the genus ‘Saccharum’ the word being derived from the Sanskrit word ‘Sharkara’. It is locally called ‘Oos’. It is the main source of sugar in India and a premier cash crop. It is grown mainly in the irrigated area in the study region. It holds the top most position in the economy of the district. It is used for making white sugar.

It is an important cash crop cultivated on 11940 hectares (2.21 %) of cultivated area in 2009-10. Highest area (5.61%) is observed in Khanapur Tahsil and lowest area (0.83 %) is observed in Jath Tahsil. Within the twenty five years area under sugarcane crop is decreased by 8558 hectares (1.97%) in study region. It is decreased in Miraj (9.07 %), Tasgaon (6.40%) and K.Mahankal Tahsil (0.46%). But the positive change is observed in Khanapur (3.52%), Atpadi (1.10 %) and Jath Tahsil (0.46 %).

**ii. Fruits**

In the present investigation fruit crops are treated separately, primarily because their area is increased tremendously in the investigation period. Fruits have undoubtedly been man’s oldest food but the development of fruits growing on commercial lines has taken place relatively recently in Sangli district. This district grows fruits such as mango, Banana, Grape, Pomegranate, Ber Guava and lime; these are important local fruit crops of the region. Grape and Pomegranate are the leading crops and leading commercial fruits of the region.
### Table - 4.11
DZSD: Fruit Crops & Change (area in Hect.)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Tahasils</th>
<th>1989-90</th>
<th>% to NSA</th>
<th>2009-10</th>
<th>% to NSA</th>
<th>Change</th>
<th>% to NSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Khanapur</td>
<td>416</td>
<td>0.39</td>
<td>4621</td>
<td>5.29</td>
<td>+4205</td>
<td>+4.90</td>
</tr>
<tr>
<td>2</td>
<td>Atpadi</td>
<td>195</td>
<td>0.30</td>
<td>1133</td>
<td>1.85</td>
<td>+938</td>
<td>+1.55</td>
</tr>
<tr>
<td>3</td>
<td>Tasgaon</td>
<td>726</td>
<td>0.82</td>
<td>3919</td>
<td>4.91</td>
<td>+3193</td>
<td>+4.09</td>
</tr>
<tr>
<td>4</td>
<td>Miraj</td>
<td>1058</td>
<td>1.39</td>
<td>1843</td>
<td>2.53</td>
<td>+785</td>
<td>+1.14</td>
</tr>
<tr>
<td>5</td>
<td>K. Mahankal</td>
<td>411</td>
<td>0.89</td>
<td>672</td>
<td>1.31</td>
<td>+2.61</td>
<td>+0.42</td>
</tr>
<tr>
<td>6</td>
<td>Jath</td>
<td>587</td>
<td>0.43</td>
<td>3842</td>
<td>2.04</td>
<td>+3255</td>
<td>+1.61</td>
</tr>
<tr>
<td></td>
<td>Total DZSD</td>
<td>3393</td>
<td>0.39</td>
<td>16030</td>
<td>2.96</td>
<td>+12637</td>
<td>+2.57</td>
</tr>
</tbody>
</table>


#### 4.4.B. Non-Food Crops

The non-food crops like oil seed and cotton are discussed in this category. The non food crops covered 8.75 percent of the total agricultural area in 1989-90 which is increased 16.57 percent in the reference year 2009-10.

**i. Oil Seeds**

Oil seeds play a significant role in the agricultural economy of the study region, as they are used both for edible end and industrial purposes. Oilseeds are grown mainly in kharif season and among these groundnut is an important one. The other oilseeds cultivated on a very minor scale are sesame, sunflower, safflower, etc.

The area under oil seed was 7.22 percent in 1989-90 and it increased in 2009-10 i.e. 14.81 percent and the total growth is 7.59 percent of the net sown area.
The highest oilseeds area is observed in Miraj Tahsil (39.08 %) and lowest area in Atpadi tahsil (0.85 %). Map 4.12 and Table 4.12 reveals that almost all in tahsils except Atpadi tahsil in study area recorded increased area under oilseeds during the period of investigation.

The high positive change is observed in Miraj (27.22 %) and Khanapur Tahsil (14.06 %).

**ii. Cotton:**

Cotton locally named as ‘Kapashi’ is another important cloth seed in the study region. Cotton is mostly raised as a kharif rained crop. Cotton is mostly known as a cash crop and it is most lucrative cash crop in Maharashtra. Because of cotton mills are dependent on productivity of cotton in the Sangli district.

Table 4.13 DZSD: Cotton Crop and Change  
(area in Hect.)

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Tahsils</th>
<th>1989-90 % to NSA</th>
<th>2009-10 % to NSA</th>
<th>Change % to NSA</th>
<th>% to NSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Khanapur</td>
<td>152</td>
<td>230</td>
<td>+78</td>
<td>+0.12</td>
</tr>
<tr>
<td>2</td>
<td>Atpadi</td>
<td>1017</td>
<td>360</td>
<td>-657</td>
<td>-1.00</td>
</tr>
<tr>
<td>3</td>
<td>Tasgaon</td>
<td>87</td>
<td>49</td>
<td>-38</td>
<td>-0.04</td>
</tr>
<tr>
<td>4</td>
<td>Miraj</td>
<td>365</td>
<td>231</td>
<td>-134</td>
<td>-0.16</td>
</tr>
<tr>
<td>5</td>
<td>K. Mahankal</td>
<td>295</td>
<td>259</td>
<td>-36</td>
<td>-0.14</td>
</tr>
<tr>
<td>6</td>
<td>Jath</td>
<td>1301</td>
<td>1929</td>
<td>+628</td>
<td>+0.05</td>
</tr>
<tr>
<td>DZSD</td>
<td>3217</td>
<td>0.62</td>
<td>0.57</td>
<td>-159</td>
<td>-0.05</td>
</tr>
</tbody>
</table>


Table 4.13 shows that the share of cotton crop is only 0.62 percent in total agriculture land in 1989-90, however it is decreased in 2004-05 and capture 0.57 percent to NSA in DZSD. This change is noticed in the study region due to variability of rainfall and shortage of irrigational facilities. The highest area under cotton crop is observed in Jath Tahsil and lowest in Tasgaon tahsil. during the investigation period area under cotton crop decreased all DZSD expecting Jath and Khanapur Tahsils.
DZSD
Percentage of Area Under Oil Seeds Crops

Year 1989-90

INDEX
- Below 05
- 05 to 10
- Above 10

Year 2009-10

INDEX
- Below 15
- 15 to 30
- Above 30

Change

INDEX
Increase
- Below 10
- Above 10
Decrease
- Below 10
- Above 10

Fig. 4.12

SCALE
0 16KM
References


