CHAPTER - III

LANDUSE PATTERN OF THE STUDY AREA

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3.4 Landuse Categories
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3.7 Landuse Efficiency

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Chapter - III

LANDUSE PATTERN OF THE STUDY AREA

3.1 Introduction:

The third chapter proposes to describe and analyses the general landuse in Bidar district. Landuse is the surface utilization of all developed and vacant land on a specific point, at a given time and space. This “leads one back to the village from and farmer to the fields, garden, pastures, fallow land forest” and to the isolated farmstead as geography deals with the spatial relationship between these aspects and planning. This is because land use changes to meet the variable demands of the land by the society in its new way and condition of life. The demand for new uses of land may be inspired by a technological change, or by a change in the size composition and requirements of a community. Same changes are short lived, whereas others represent a more constant demand in short land utilization is the use made of the land by man, as surveyed and mapped in a series of recognized, by categories.

The growth of population may change the forest fallow land and pasture land into crop land. It also convert into residential land and industrial land according to the needs of growing population. The study of land utilization has both economic, geographic aspect consists largely of a survey of the temperature, humidity, topography and soil conditions which influence the utilization of land for crops, pasture or forest. This study of landuse is of vital importance from the point of view of planning and development of the area.

3.2 Meaning and importance of landuse

The term land utilization is also used for varied utilization of land and soil survey e.g. land under cultivation past were barren, orchard, fallows, waste, cultural waste, settlements, forests, water bodies etc.
According to J.L.Buck, “Land utilization is the satisfaction, which is the farm population derives from the type of agriculture developed, the provision for factor production and the contribution to natural needs.”

Landuse is actually made of any parcel of land, house, apartments and industrial location are land use categories, where as the term residential, industrial and agricultural refers to a system of land utilization planning roads neighborhood retail and service activities as well as location of industries, and the carrying of agricultural pursuits. In a rural area, tree, crop or row crop would identify landuse where as orcharding, truck, farming and grazing, indicate a system of land utilization.

Land utilization involves an examination of the natural factors, affecting both the harnessed and the potential productivity of the land in a changed situation of the locality and its requirements. These factors are land, temperature, rainfall and soil, which in configuration together constitute the physical background of agriculture and determine the limits of both the cultivability and productivity of the land.

Landuse is the latest ramification of the fast growing tree of economic geography. Geographers can present a clear pictures of the potential of landuse, conductive to fruitful planning for a massive agricultural of land asset should essentially include the requirements of land for location of industries, sites houses, schools, public buildings, railways, roads, canal and airports etc. The consumption of better agricultural land for purposes of urbanization is thus, a great danger to the farmers because the land withdrawn from agricultural use is either never returned to the farmer or even is returned it is also done only after a long lapse of time.

Land utilization mainly deals with the problems related to the society and the region as a whole, rather than a private farmer. Land use is mainly related to the optimum use of the limited and between the

(81)
alternative major types of landuse. Land utilization is also related to ‘conservation’ of land from one major use to another general use.\[^{6}\] The efficient use of land depends on the capacity of the man to utilize the land and to manage it. It also depends upon the system of farming of land tenures and size of the holding whereas the institutional farm work and the production function cored on by the farmer.

For human existence, within certain biotic, ecological and economic conditions the utilization of land is of prime importance. It involves a relationship that exit between the societies on the one hand, and cultural advancement resource planning and carrying capacity of the land on the other. The intensive use of the land depends upon population, human establishment, industrial location while extensive use of land is related to spare population, dispersed settlements, the absence of communication lines and the crude farms transport. However only the systematic utilization of land can be able to promote economic and cultural advancement. If there is no utilization of land, one cannot think of any progress. Thus the study and land utilization is of immense value in tracing out the past use of land its future trend. Only through the study of the past land utilization, one can able to predict its future use and involve land use planning of a particular region.

### 3.3 Review of Landuse

In 1930, Stamp established an independent research organization called ‘Land utilization survey of Britain’. In Poland under the direction of J.Kostrowickd (1968) Department of Geography Polish Academy of Sciences developed a new pattern of land utilization based on agricultural typology, agricultural regionalization and planning or programming agricultural development (Kostrowicki)

The important of land utilization is being felt with the passage of time. Such studies are important from two aspects (a) academic, as a
specified field training and (b) the practical as the base for planning the national economy. L.D. Stamp pioneered the land use studies in Britain. His monumental work (Stamp, 1951) have encouraged and provided guidelines to geographers all over world.

Land us studies conducted by Indian geographers in various parts of the country received inspiration from L.Dubely Stamp who had attended the 25th Session Science Indian Congress at Calcutta in 1938. Such studies range from inventories of land use surveys to isolated topical or regional descriptive accounts of land use variations, both in space and time. Recently, the analysis of landuse components.9

Buck studies land utilization of China. The purpose of Buck’s survey was three fold (a) to train the students in the method of research in land utilization, (b) to make available knowledge of Chinas agriculture and (c) To land use interest among people of other countries in China’s welfare, land utilization, food and population problems.10

The land utilization survey in eastern Uttar Pradesh by M.Shafi.11 have made a strong plea to carry out land capability. The land utilization survey of 24 pargana’s and Howrah district conducted by S.P. Chaterjee12 Besides various geographers have studied landuse pattern of various regions. R.N.P.Sinha of Patna University intensively studied the landuse of the canal irrigated area of Patna district (1965) in Bhagalpur University R.N. Das studies the land use of the Kosi Basin in North Bihar (1969) while S.R. Roy prepared his Ph.D. thesis of landuse and settlement in district of Bhojapur and Rohtas Bihar (1976). In Sagar University S.N. Mishra has studied landuse in Khadar and rannes of the lower middle Gomati valley (1964).

3.4 Landuse Categories

The purpose of landuse classification is to be maximizing the productivity conserve the land for posterity. A classification of land
requires considerable time and expense hence there must be a justification to classify any land into different categories. The need is to specify clearly the objectives of land classification procedure which should be applicable all over the world with same difference or similar principles. ‘Land classification is not an end in itself but a means of obtaining better landuse.’\textsuperscript{13} The landuse classification should also include the natural qualities of the land economic consideration, such as market accessibility, size and type of operation unit, distribution and composition of population, location of roads, schools lives, stores, factories, mines, transport, cost of production etc.

Landuse classification is the systematic arrangement of various classes of land on the basis of certain characteristics, mainly to identify and understand their fundamental utilities, intelligently and effectively in satisfying the needs of human society.\textsuperscript{14} Land must be carefully utilized, so that it may fulfill our varied needs after its proper allocation. The best use of each parcel of land requires a scientific and methodically appreciate classification of the present landuse. This may be help us in investigating the land use problems and be the basis of planning for the best use our land after considering the major land use categories.

The increase in population needs additional land for shelter and food produce and requires judicious utilization of our land resources. Several geographers conducted land use survey of different countries. L.D. Stamp\textsuperscript{15} had suggested the classification of the land Britain into categories for broad national policy of land use planning and conservation of land resources had proposed three major categories and 10 types, based on the nature of site (elevation and slope)( (b) the nature of soil (depth texture and water condition)
Major Categories

Sub 10 types

(a) Good quality land
1. First class land
2. Good general purpose farmer
3. First class land with grass
4. Good but heavy land
5. Medium quality light land

(b) Medium quality land
6. Medium quality general
7. Poor quality heavy land
8. Poor quality mention and poor land

(c) Poor quality land
9. Poor quality light land

India various organizations and the geography department of Universities are new holding land utilization survey and mapping on regional level. For example these departments had conducted landuse survey, Damodar Valley, Landuse of canal irrigation area in Patna, Bihar\textsuperscript{16} etc. The census of India, has classified the land into nine different categories as forest land, barren, cultivable waste, cultivated area, current fallow, permanent fallow, cultivated area etc. But for the present study, they are ground into five landuse categories viz. 1) Area under forest 2) Area not available for cultivation 3) Other uncultivated area excluding fallow land 4) Fallow land 5) New sown area because are under other categories are insignificant. Out of these 121 categories, the first and second category is the total non-agricultural land. Third is the potential agricultural land and fourth and fifth constitute the agricultural land.

3.5 General Information of Study Area

Bidar is the northern most district of Karnataka. It is at present relatively a small district, being the remainder of a bigger one, parts of which were transferred to the neighboring states with effect from the 1\textsuperscript{st}
of November 1956 when there was states reorganization. Upto that date, the district was a part of the erstwhile Hyderabad state.

The total geographical area of the district as per the provisional figures computed by the survey of India is 5451 square kms. The population of the district according to 2001 census was 15,02373 (3,44,875 urban and 1157498 rural).17

**Table No.3.1**

**Tahsilwise Circles in Bidar District**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Taluka</th>
<th>As in 1965 (before change)</th>
<th>As in 1975</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of circles</td>
<td>Name of circles</td>
</tr>
<tr>
<td>1</td>
<td>Aurad</td>
<td>03</td>
<td>Aurad Shambeli Toma</td>
</tr>
<tr>
<td>2</td>
<td>Basavakalyan</td>
<td>-</td>
<td>Taluka namely formed in 1965</td>
</tr>
<tr>
<td>3</td>
<td>Bhalki</td>
<td>04</td>
<td>Bhalki Halbarga Hulsoor Kumarchincholi</td>
</tr>
<tr>
<td>4</td>
<td>Bidar</td>
<td>04</td>
<td>Bidar Janawada Madaknalli Nirna</td>
</tr>
<tr>
<td>5</td>
<td>Humnabad</td>
<td>04</td>
<td>Humnabad Chitaguppa Kalyani Ladwanti</td>
</tr>
</tbody>
</table>

Source: Karnataka State Gazetteer, P.No.5-6

(86)
Fig. No. 3.1: Land Utilization Bidar District

- Forest
- Barran & uncultivable land
- Permanent pastures
- Current Fallow land
- Trees & Groves
- Other Fallow land
- Landput to non agri uses
- Cultivable waste land
- Net Sown Area

Net Sown Area: 64%

- Forest: 5%
- Landput to non agri uses: 4%
- Cultivable waste land: 4%
- Permanent pastures: 4%
- Trees & Groves: 3%
- Other Fallow land: 2%
- Current Fallow land: 7%
- Barran & uncultivable land: 7%
Since 1956 there have been five talukas, namely, Aurad, Baswakalyan, Bhalki, Bidar and Humnabad. All the five talukas constitute a revenue sub-division with an Assistant Commissioner in charge of it. The talukas are sub-divided into revenue circles (hobils), and there were 15 such circles till the formation of the Basavkalyan taluka is 1965. Now there are 20 revenue circles, each taluka having six such circles. The subjoined statement gives the number and names of the previous and present revenue circles under each taluka:

The land utilization of Bidar district of the year 2007-08 is shown with the help of wheel diagram in the fig no.3.1.

3.6 Landuse Pattern

Land classified as forest, barren, cultivable waste, pasture, marshy, cultivated area etc. The census of India has classified these landuse types into nine categories but in the present chapter they are grouped into three broad categories viz. i) Non-agricultural land ii) Potential agricultural land and iii) Agricultural land (Singh 1979). The table 3.2 shows the trends of these landuse categories in the region under study.

**Table No.3.2**

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Landuse Category</th>
<th>1999-05%</th>
<th>2006-11%</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Non-agricultural land</td>
<td>9.10</td>
<td>10.99</td>
<td>1.89</td>
</tr>
<tr>
<td>2</td>
<td>Potential agricultural land</td>
<td>5.80</td>
<td>11.82</td>
<td>6.02</td>
</tr>
<tr>
<td>3</td>
<td>Agricultural land</td>
<td>85.10</td>
<td>77.18</td>
<td>-7.92</td>
</tr>
<tr>
<td></td>
<td>Net sown area</td>
<td>77.72</td>
<td>64.14</td>
<td>-13.58</td>
</tr>
<tr>
<td></td>
<td>Fallow land</td>
<td>7.38</td>
<td>13.04</td>
<td>5.66</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100.00</td>
<td>100.00</td>
<td></td>
</tr>
</tbody>
</table>

Source : Compiled by the Researcher

General landuse pattern of the district differs more from that of Karnataka state, due to its location and physical setting. The land not
available for cultivation is more in the western ghat with dense forest cover, whereas the proportion of agricultural land relatively more level area. The potential agricultural land which can be brought under cultivation is confined to the north-western and southern and southern part of the study area. Having thus, presented the overall picture of general landuse, a detailed analysis of the same using quinquennial averages for 1999-2005 and 2006-2011 and the respective spatio-temporal changes there in now follows.

I) Non-agricultural land

Land not available for cultivation includes the categories of forests, bareen and uncultivable land and land put to non-agricultural uses. In other words they include the land which cannot be brought under cultivation unless at a very high cost.

Table No.3.3

Tahsilwise Percentage of Non-Agricultural Land of Bidar District


<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Tahsil</th>
<th>1999-2005</th>
<th>2006-11</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aurad</td>
<td>12.0</td>
<td>12.1</td>
<td>0.1</td>
</tr>
<tr>
<td>2</td>
<td>Basvakalyan</td>
<td>26.1</td>
<td>26.2</td>
<td>0.1</td>
</tr>
<tr>
<td>3</td>
<td>Bhalki</td>
<td>12.1</td>
<td>11.9</td>
<td>-0.2</td>
</tr>
<tr>
<td>4</td>
<td>Bidar</td>
<td>16.6</td>
<td>16.7</td>
<td>0.1</td>
</tr>
<tr>
<td>5</td>
<td>Humnabad</td>
<td>33.2</td>
<td>33.1</td>
<td>-0.1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Completed by the Researcher

This part is the spatial pattern and the respective change in non-agricultural land the period under review.

The areas of high proportion of non-agricultural land (over 20%) are observed in only Bidar tahsil. The moderate proportion i.e. (10% to 20%) prevails in the tahsil here the physical limitations appear to be responsible for the lower proportion of land surface suitable for non-
agricultural land. Elsewhere the proportions of land under this category is below 10% particularly. (Map No.3.1A) Covering densely populated and irrigated part where low laying relief is the main cause for the lower proportion of non-agricultural land and of this land is under roads, settlements and other public projects. The increase and decrease in the relative position of strength of non-agricultural land of tahsil is taken to provide a comparative measure of change that occurred over period 1999-2005 to 2006-11 (Map No.3.1B).

II) Potential Agricultural Land:

The potential agricultural land is most important in the study area the land for purpose of extension of cultivation can be found only in this category which could be used for cultivation but has been cultivated showing to i) uncultivable wasteland ii) Permanent pasture and grazing lands and iii) Miscellaneous tree and groves. In the ensuing discussion the three considered together under the heading of potential agricultural land, which was about 5.8 percent of the total growth area during 2006-2011. The spatial distribution represented in the areas various from below 5.80 to 11.82 percent significantly very high (above 20%)

Table No.3.4

Tahsilwise Percentage of Potential Agricultural Land in Bidar District (1999-2005 to 2006-2011)

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Tahsil</th>
<th>1999-2005</th>
<th>2006-11</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aurad</td>
<td>17.7</td>
<td>10.6</td>
<td>-7.1</td>
</tr>
<tr>
<td>2</td>
<td>Basvakalyan</td>
<td>21.6</td>
<td>12.9</td>
<td>-8.7</td>
</tr>
<tr>
<td>3</td>
<td>Bhalki</td>
<td>31.6</td>
<td>18.8</td>
<td>-12.8</td>
</tr>
<tr>
<td>4</td>
<td>Bidar</td>
<td>7.7</td>
<td>45.0</td>
<td>37.3</td>
</tr>
<tr>
<td>5</td>
<td>Humnabad</td>
<td>21.4</td>
<td>12.7</td>
<td>-8.7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Completed by the Researcher

Proportions of potential agricultural land is found in Bidar and her tahsils. This is mainly due to adverse climatic conditions and physical
structure. A coverage of above 20 percent is Bidar tahsil and 10 to 20 percent is observed in the Bhalki, Basvakalyan and Humnabad. Rest of the Aurad tahsils have measure land (below 10%) available for future extension under cultivation. (Map No.3.2A)

The changes in potential agricultural land is increase percent of above 10% in Bidar tahsil and decrease percent of above 10% in Bhalki and below 10% is Aurad, Basvakalyan and Humnabad tahsil. (Map No.3.2B)

Potential agricultural landuse is slightly decreased from 44125 hectares in 1999-05 to 74182 hectares in 2006-11.

III) Agricultural Land

In the district agricultural area is very important. It is also called as arable land or cultivated consisting of two land use categories viz. Net sown area and fallow land. Cultivated area is the land regularly ploughed and includes both village and fallow lands. Date pertaining to agricultural land reveals that the study region has the lowest cultivated area amongst the upland of district area amongst the upland of district of south-east Karnataka with an average of 81.51 percent of the total land classification areas. There is also a significant contrast in the regional distribution of agricultural land in the region. The proportion of net sown area and fallow land compared together occupying the tahsils of Bidar, Aurad, Bhalki and Baswakalyan have above 80 percent to 20 percent area. This is partly due to favourable ecological conditions, availability of water irrigation and partly due to high population density and the demand for more food.
Table No.3.5
Agricultural Land of the Bidar District (in hectares)
(1999-05 & 2006-11)

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Tahsil</th>
<th>199-2005</th>
<th>2006-11</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aurad</td>
<td>125449</td>
<td>119549</td>
<td>5.3</td>
</tr>
<tr>
<td>2</td>
<td>Basvakalyan</td>
<td>243007</td>
<td>107059</td>
<td>-15.5</td>
</tr>
<tr>
<td>3</td>
<td>Bhalki</td>
<td>112959</td>
<td>94344</td>
<td>2.1</td>
</tr>
<tr>
<td>4</td>
<td>Bidar</td>
<td>85723</td>
<td>85607</td>
<td>0.1</td>
</tr>
<tr>
<td>5</td>
<td>Humnabad</td>
<td>79709</td>
<td>77407</td>
<td>3.7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>646847</td>
<td>483966</td>
<td></td>
</tr>
</tbody>
</table>

Source: Completed by the Researcher

Table No.3.5 shows area under agricultural land has witnessed some changes in the tahsil, especially in tahsil Aurad. A record increase is noted agricultural land happens to be of great significance in landuse studies. Hence detailed analysis of the areal variation in its two categories is presented. Following information of the tahsilwise percentage of agricultural land in Bidar district.

Table No.3.6
Tahsilwise Percentage of Agricultural Land
in Bidar District (1999-05 & 2006-11)

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Tahsil</th>
<th>1999-2005</th>
<th>2006-11</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aurad</td>
<td>19.4</td>
<td>24.7</td>
<td>5.3</td>
</tr>
<tr>
<td>2</td>
<td>Basvakalyan</td>
<td>37.6</td>
<td>22.1</td>
<td>-15.5</td>
</tr>
<tr>
<td>3</td>
<td>Bhalki</td>
<td>17.4</td>
<td>19.5</td>
<td>2.1</td>
</tr>
<tr>
<td>4</td>
<td>Bidar</td>
<td>13.3</td>
<td>17.7</td>
<td>4.4</td>
</tr>
<tr>
<td>5</td>
<td>Humnabad</td>
<td>12.3</td>
<td>16.0</td>
<td>3.7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Completed by the Researcher

A coverage of above 20 percent observed in the Aurad and Basvakalyan. Bhalki, Humnabad and Bidar tahsils have measure land below 20 percent (Map No.3.3A).
AGRICULTURAL LAND
(2006-2011)
BIDAR DISTRICT
Map No. 3.3A

INDEX:
% of Total Area

BELOW 20
ABOVE 20

CHANGE IN AGRICULTURAL LAND
BIDAR DISTRICT
Map No. 3.3B

INDEX:
% Increase
% Decrease

BELOW 2
ABOVE 2

(95)
The changes in agricultural land in 1999-2005 and 2006-2011 above 2% in the Aurad, Bidar, Humnabad and Bhalki is below 2 percents increase. Decrease percentage is above 2% in the tahsil is only Basvkalyan (Map No.3.3B)

A) Net Sown Area:

The net sown area represents the extent of the cultivated area actually sown during on agricultural year. The environmental factors appear to vedecisive in determining the extent of net sown area in the region under study what is remarkable to note is that half of the total area is just not available for cultivation due to ragged topography forested land in west-north and north-east section exhibit the regional variation in the share of net sown area running from below 10 percent the overaly increase -17.7 percent and it is mostly wide-spread in the western part of the region. The most direct explanation of the changes in the net sown area can, of course, be land by reference to the percentage and the important in methods of farming.

Table No.3.7
Tahsilwise Percentage of Net Sown Area in Bidar District
(1999-05 & 2006-11)

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Tahsil</th>
<th>1999-2005</th>
<th>2006-11</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aurad</td>
<td>18.5</td>
<td>24.3</td>
<td>5.8</td>
</tr>
<tr>
<td>2</td>
<td>Basvakalyan</td>
<td>40.0</td>
<td>22.3</td>
<td>-17.7</td>
</tr>
<tr>
<td>3</td>
<td>Bhalki</td>
<td>18.3</td>
<td>21.1</td>
<td>2.8</td>
</tr>
<tr>
<td>4</td>
<td>Bidar</td>
<td>10.7</td>
<td>15.2</td>
<td>4.5</td>
</tr>
<tr>
<td>5</td>
<td>Humnabad</td>
<td>12.5</td>
<td>17.1</td>
<td>4.6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Source : Completed by the Researcher

A coverage of above 20 percent is observed in the tahsil of Aurad, Bhalki and Basvakalyan and below 20 percent is Bidar and Humnabad tahsils (Map No.3.4A)
The changes of net sown area in 1999-2005 and 2006-2011 the increase percentage is above 2% in the tahsil of Aurad, Bidar Humnabad and below 2 percent is Bhalki tahsil and decrease percentage is above 2% in Basvakalyan tahsil only (Map No.3.4B)

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. Thus the extent of net sown area more than once in the regions is very low. This is so because almost all irrigated area in the study region is used for the most important cash crop namely, sugarcane, which depends to be an annual crop. The very small extent of area under double cropping is confined to the western and eastern part of the tahsil due to high rainfall conditions some moisture is stored in the soil to rise the Rabi crops after the Kharif season.

B) Fallow Land

The term fallow is applied to the lands not under cultivation at the time of reporting but have been sown in the past compared to net sown area, the percentage of fallow land is small and compares well with that of state as a whole. The extent of fallows is influenced either by climatic conditions, limited means, lack of irrigation facilities, land disputes. It is made necessary to rest the soil after the exhaustion due the cropping pattern of the preceding year. Table 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 western and eastern parts of the district providing irrigation facilities can intensively use this area. Fallow land area in 2006-2011
above 20 is Bhalki and Humnabad and below 20% is Aurad, Bavakalyan and Bidar tahsil. (Map No.3.5A)

Table No.3.8
Tahsilwise Percentage of Fallow Land Area in Bidar District
(1999-05 & 2006-11)

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Tahsil</th>
<th>1999-2005</th>
<th>2006-11</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aurad</td>
<td>28.4</td>
<td>26.5</td>
<td>-1.9</td>
</tr>
<tr>
<td>2</td>
<td>Basvakalyan</td>
<td>11.9</td>
<td>21.2</td>
<td>9.3</td>
</tr>
<tr>
<td>3</td>
<td>Bhalki</td>
<td>8.5</td>
<td>11.4</td>
<td>2.9</td>
</tr>
<tr>
<td>4</td>
<td>Bidar</td>
<td>40.2</td>
<td>29.8</td>
<td>-10.4</td>
</tr>
<tr>
<td>5</td>
<td>Humnabad</td>
<td>11.0</td>
<td>11.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Completed by the Researcher

The changes in fallow land area in Bidar district is the increase percentage is above 2% are Bhalki and Basvakalyan and below 2% is Humnabad. The decrease percentage is above 2% Bidar and below 2% is Aurad tahsil. (Map No.3.5B)

An increase is one type of landuse must necessarily produce a decrease in another. Hence for assessing the overall landuse change in the region the technique of determining the index of the change given in appendix 1 is applied the significant change took place Aurad, Basvakalyan, Bhalki, Bidar and Humnabad of the tahsil this may be explained in terms of substantial losses or gains in non-agricultural land and potential agricultural land due to the rapid change in socio-economic and agronomic conditions. In constrast to these area of semi dynamic change are Bidar and Aurad. This is mainly due to the moderate amount of decline or increase in non-agricultural land and potential agricultural land in these tahsils.

These regional variations in the landuse change are associated with the changes in irrigation and agricultural development. But the basic
FALLOW LAND (2006-2011) BIDAR DISTRICT

Map No. 3.5B

INDEX:
% Increase
% Decrease

BELOW 2
ABOVE 2
BELOW 2

Map No. 3.5A

INDEX:
% of Total Area

FALLOW LAND
(2006-2011)
BIDAR DISTRICT

0 10 20 Km. N

BIDAR DISTRICT
CHANGES IN FALLOW LAND

Map No. 3.5B

INDEX:
% Increase

% Decrease

ABOVE 2
BELOW 2

ABOVE 2
BELOW 2
elements of physical environment appear to have the strongest influence in fashioning the general pattern of the landuse change.

3.7 Landuse Efficiency :

The gross cropped area as a percentage of the net sown area gives a measure of landuse efficiency which means the intensity of cropping. The index of landuse efficiency is obtained by using the following formula.

\[
\text{Index of landuse efficiency} = \frac{\text{Gross Cropped Area}}{\text{Net Sown Area}} \times 100
\]

Table No.3.9 indicates that regions average gross cropped area and net sown area was 85.1 lack and 77.7 lack hectares respectively during 1999-2005. The index of landuse was 103% in 1999-2005 and it was increased upto 110% in 2006-2011. It means that land use efficiency index was increased by below 105% landuse efficiency index was found in Basvakalyan and Bhalki tahsils. 105 to 120% landuse efficiency was recorded in Aurad and Humnabad tahsil during 1999-2005, above 120% landuse efficiency index was recorded in Bidar tahsil, during the 1999-2005. Below 120% negative change in landuse efficiency was recorded in Basvakalyan, Bhalki and Humnabad tahsils during 2006-2011 and positive change in landuse efficiency was recorded Aurad 122% and Bidar 139% duration 2006-2011. Variation in the landuse efficiency are mainly confined to the regions. Where irrigational facilities are more pattern of agricultural practices, physical and non-physical determinations of agriculture are also responsible for the variation in landuse efficiency.
Table No.3.9

State Showing Landuse Efficiency in Bidar District

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Name of Tahsil</th>
<th>1999-2005</th>
<th>2006-2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gross Croppe d Area (00 hect.)</td>
<td>Net Sown Area (00 hect.)</td>
<td>Index Landuse Efficiency</td>
</tr>
<tr>
<td>1</td>
<td>125449</td>
<td>109500</td>
<td>115</td>
</tr>
<tr>
<td>2</td>
<td>243007</td>
<td>236353</td>
<td>103</td>
</tr>
<tr>
<td>3</td>
<td>112959</td>
<td>108173</td>
<td>104</td>
</tr>
<tr>
<td>4</td>
<td>85723</td>
<td>63133</td>
<td>136</td>
</tr>
<tr>
<td>5</td>
<td>79709</td>
<td>73526</td>
<td>108</td>
</tr>
</tbody>
</table>


(i) Areas of low intensity (below 105%) area of low intensity is distributed in Basvakalyan and Bhalki. Most of the area is barren in these tahsils. Soils are poor, well are providing water for irrigation, but most of the well became dry in summer seasons hence these tahsils have low intensity of landuse efficiency.

(ii) Areas of medium intensity (105 to 120%) area of medium intensity is confined to Humnabad tahsils. These tahsils having less irrigated area. Some part of these tahsils are having intensity of landuse efficiency. Physical and non-physical determinants of agriculture are responsible for the medium land use efficiency.

(iii) Areas of high intensity (above 120%) area of high intensity of landuse efficiency is found in Aurad and Bidar tahsils. Fertility of soil, use of chemical, fertilizers, use of high yield variety seeds and modern
agricultural implements are responsible for the high intensity of land use efficiency.

Summary:

General landuse pattern of the district differs more from that of Karnataka state, due to its location and physical change. The land not available for cultivation is more in the western ghat with dense forest cover, whereas the proportion of agricultural land respectively more level area. The areas of high proportion of non-agricultural land (over 20%) are observed in only Bidar tahsil. The moderate proportion i.e. (10% to 20%) prevails in the tahasil here the physical limitations appear to be responsible for the lower proportion of land surface suitable for non-agricultural land.

In the ensuring discussion the three considered together under the heading of potential agricultural land, which was about 5.8% of the total growth area during 2006-2011.

Table No.3.5 shows area under agricultural land has witnessed some changes in the tahsil, especially in tahsil Aurad 5.3 record increase is noted agricultural land happens to be of great significance in landuse studies. The most direct explanation of the changes in the net sown area can of course be land by reference to the percentage and the important in methods of farming.
Reference

5) R.G.S. Stalpendon (1940) ‘The Land, now and tomorrow 1940’, P.No.32
8) L.D. Stamp (1951) ‘Land for tomorrow the under development world Bloomington 1951’

(104)
17) Karnataka State Gazetteer, P.No.5-6.