Chapter IV

General Landuse in Osmanabad District

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Chapter IV

General Landuse in Osmanabad District

4.1 Introduction:

In the previous chapter the role of non-physical determinants of agriculture such as irrigation, population, livestock, agricultural implements, use of chemical fertilizers, high yielding variety seeds, pesticides, credit facilities, marketing and transportation are analysed in detail. This chapter proposes to describe and analyse the general landuse pattern in Osmanabad district.

Land is the basic resource of human society. Its utilization shows a reciprocal relationship between the prevailing ecological conditions of a particular region and man. Land 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 farm and the farmer, to the fields, gardens, pastures, fallow land, forests and to the isolated farmstead" as geography deals with the spatial relationship between these aspects and planning. This is because landuse changes to meet the variable demands of 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 or by a change in the size, composition and requirements of a community. Some changes are short-lived where as others represent a more constant.

In this way, land utilization is the use made of the land by man, as surveyed and mapped in a series of recognized categories. The primary uses of land are for crops, forest, pasture, mining, transportation, gardening, residential, recreational, industrial, commercial, uncultivable waste and barren and fallow land etc. It is not normally possible to use land for two or more purposes simultaneously though some times even this possible i.e. the pasture woodland. Landuse is an important aspect of geographical studies particularly relevent to agricultural geography.

The idea of a landuse hierarchy varies with the production and
consumption factors. The production factors are land, transportation facilities and the stage of technological advancement. The consumption factor include the number of people, consumption of goods per person and gross export. The growth of population may change the forest and pasture land into cropland, including residential and industrial land utilization survey made uptill now were mostly concerned with the smaller areas of rural and urban sector.

The study of land utilization has both economic, geographic and demographic dimensions. The 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. The demographic aspect considers the studies of population distribution, composition, characteristics and trends not only in the area being survey, but in the whole country.

4.2 Meaning and Importance of Landuse:

The difference between landuse and land utilization is important. Landuse is the use actually made of any parcel of land, house, apartments and industrial location are landuse categories, where as the term residential, industrial and agricultural refer to a system of land utilization implying roads, neighbourhood retail and service activities as well as location of industries and the carrying of agricultural pursuit. In a rural area, tree crop or row crop would identify landuse, where orcharding, 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, fallows, waste, culturable waste, settlements, forests, water bodies etc. According to J. L. Buck "Land utilization is the satisfaction, which the farm population deries from the type of agriculture developed, the provision for future production and contribution to national needs" (Quoted 1951). While the definition given by Salter is as follows: "Land utilization research can be described as dealing with 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." In this sense land utilization involves an examination of the natural factors affecting both the harnessed and the potential productivity of the land is a changed situation of the locality and its requirements. These factors are the land, temperature, rainfall and soil, which in a configuration together constitute the physical background of agriculture and determine the limits of both the culturability and productivity of the land.

Land utilization mainly deals with the problems related to the society and the region as a whole, rather than a private farmer. Landuse is mainly related to the optimum use of the limited land between the alternative major types of landuse. In rural areas, the major types of landuse is as follows:

1) Agricultural land
   (a) non-irrigated lands
   (b) irrigated lands
   (c) dry farming areas
   (d) grazing areas.

2) Village orchards or forest lands.

3) Forest land
   (a) forest covered
   (b) forest reclaimed landuse
   (c) culturable or recreational landuse.

Land utilization is also related to "conservation of land from one major use to another general use". After reclamation of forest land, a question arises as to how the land should be utilized. The rotation of crops and their combination are after all minor problems of landuse study. This is because these aspects depend upon personal experience and institution of the farmer who decides which crops should be grown in rotation.

There is an intimate relationship between land economics and land utilization. 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 systems of farming, systems of land tenures and size of the holdings. Where as the
production efficiency and level of production depend upon the institutional farme work and the production function carried on by the farmer.

The man-land relationship can be experienced in three different aspects. First, the land and the individual person who uses it, second, the man and his influence on the use of the land as a means of production. In this case institutional infrastructure should be studied for improved landuse. The third relationship between land and man can be expressed in terms of man as a social being and the land as an inexhaustible resource.

For human existence, within certain biotic, ecological and economic conditions the utilization of land is of prime improtance. It involves a relationship that exist between the society on the one hand and cultural advancement, resource planning and carrying capacity of the land on the other. The intensive use of land depends upon population concentration, economic prosperity through better agricultural production, human establishments, industrial locations, communication and transport lives, while extensive use of the land is related to spare population, dispersed settlements, the absence of communication lines and the crude forms of 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 of land utilization is of immense value in tracing out the past use of land and its future trend. Only through the study of the past land utilization, one can be able to predict its future use and evolve landuse planning of a particular region. The changing population and the economic, the biological and the ecological problems are so alarming that the conservation and the best utilization of land becomes a necessity.

4.3 Landuse Classification:

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

The landuse types and its classification must be clearly presented in comparison with other land classification according to productivity index\(^6\) and the yield and quality of crops grown under physically defined system of management or according to storic\(^7\) index based upon soil profile, soil texture and other physical factors combined to control the use capabilities of particular soil and its productivity under favourable environmental conditions. The increase in population needs additional land for shelter and food produce and requires judicious utilization of our resource. In view of this urging problem, world land use inventory survey had been proposed in the International Geographical Congress of Lisbon in April 1949\(^8\). On this basis landuse survey has been carried out in several countries including Poland, Cyprus, Italy, Jamaica and others. At the second time, the commission met at the International Geographical Congress in 1953 and it was proposed to carry out pilot survey in as many parts of the world as possible. L. D. Stamp wade made the incharge of the Eastern Hemisphere and Van Valkenburg of the Americas. An impressive record of pilot survey on different scales of various parts of the world were presented\(^9\). These commission proposed a simple classification of world landuse along with colour scheme which is mainly suited to local condition. The classification is as falls : World landuse survey was drawn up under the auspices of UNECO.

1. Settlements and associated non-agricultural land (dark and light red)
2. Horticulture (deep purple)
3. Tree and perennial crops (light purple)
5. Improved permanent pasture (light green)
6. Unimproved grazing: used (orange) not used (yellow).
7. Wood lands: dense (dark green) open (medium green) Scrub (olive green) swampy forest (blue green) etc.
8. Swamps and marshes (blue).

L. D. Stamp had suggested the classification of the land of Britain into categories, for broad national policy of landuse planning and conservation of land resources. He had proposed three major categories and 10 types, based on:

a) the nature of site (elevation and slope)
b) the nature of the soil (its depth, texture and water condition).

The major categories are as follows.
1) Good 2) Medium and 3) Poor

He suggested following ten sub-types:

Good quality land:
1. Forest class land
2. Good general purpose farmland
3. First class land with grass
4. Good but heavy land.
5. Medium quality light land.

Medium quality land:
6. Medium quality general
7. Poor quality heavy land.
8. Poor quality mountain and moorland.

Poor quality land:
9. Poor quality light land

J. L. Buck, in his monumental study of land utilization in China, conclude, from a survey of 16,786 farms in 168 localities of eight agricultural region, that for agricultural China there can be no great increase in amount of farm land. He has given seven types of land utilization of China. They are as following.

In India, landuse categories recognised by different scholars belongs to two different type e.g. town planners and urban geographers.

Town planners quite often categories urban landuse as residential, commercial, industrial, transport, communication, public utilities, open space, agricultural, vacant land and water bodies\(^{13}\). On the other hand, there are minor difference amongst the urban geographers and most of them classified the urban landuse into the following categories residential, agricultural, open spaces, military lands, parks and burial grounds\(^{14}\).

In the light of physical-socio-economic environment, man determines the uses of land. These are take into consideration while classifying the land under different categories and sub-categories. The census of India, has classified the land into nine different categories, as forest, barren, cultivable waste, cultivated area etc. But for the present study, they are grouped into five landuse categories viz. 1) Area under forest 2) area not available for cultivation 3) Other uncultivated land excluding fallow land, 4) fallow land and 5) net sown area, because area under other catgories are insignificant.

Out of these categories, the first and the second comprises the total non-agricultural land. Third is the potential agricultural land and fourth and fifth constitute the agricultural land.

4.4 Tahsilwise Trends in General Landuse Pattern in Osmanabad District:

Due to the location and physical setting the general landuse pattern of the region under study differs from tahsil to tahsil. The existing pattern of landuse, as shown in map 4.1 appears to have been resulted from a process of land exploitation within the frame of physical-socio-economic complex and modified by the expansion of irrigation and the growth of population. There is a change in geographical factors in the entire study region. Physiography, soil types, rainfall and geology all these factors played important role in determining the agricultural practices. Data for first quinquennium (1970-75) was obtained from tahsilwise data. About 60.47% to 91.65% of the total geographical area was under cultivation because of varied physical features. Agricultural land available for agriculture is above 80% in all tahsils.
in the study region.

Tahsilwise trends in general landuse pattern in Osmanabad district is shown in table 4.1. With this generalised picture of general landuse pattern of the study region, a detailed analysis of the same is given below. For this analysis quinquennial averages for 1970-75 and 1990-95 are used to find out the spatio-temporal changes. As Osmanabad and Latur districts were formed in August 1982, respective tahsils data is used for the district total from 1970-71 to 1980-81. Eight villages from Barsi tahsil (Solapur district) were included in Osmanabad tahsil on 15th August 1982, therefore area of Osmanabad tahsil increased from 119400 hectares to 132600 hectares.

1) Area Under Forest:

About 2400 hectares or 0.33% of the geographical area of the Osmanabad district was under forest during 1970-75. It increased from 2400 hectares to 3600 hectares during the period of investigation. This shows that there was minor increase (0.15%) in forest area from 1970-75 to 1991-96. Table 4.1 indicates that there is variation in forest area from tahsil to tahsil. The highest area under forest was found in Tuljapur tahsil (1.05%) where as the lowest forest area was noticed in Omerga (0.14%) during 1991-96.

Out of the total geographical area below 0.50% area was under forest in Osmanabad, Omerga, Pareda and Kallam tahsils while 0.50% to 1% area under forest was found in Bhum tahsil during 1991-96. Above 1% area under forest was noticed in Tuljapur tahsil in the last quinquennium (1991-96). Area under forest is very less in Osmanabad district. Climatic condition is not favourable for the growth of trees in the Osmanabad district.

The negative change below 0.10% was found in Omerga tahsil from 1970-75 to 1991-96. Table 4.1 reveals that very minor positive and negative changes were occurred in forest area from first quinquennium to last quinquennium.

Below 0.50% positive change in forest area was experienced in Osmanabad, Kallam, Pareda and Bhum tahsils, where as above 0.50% positive change in forest area was noticed in Tuljapur (0.59%) tahsil during the period of investigation (Map 4.3 B).
Table No. 4.1: Tahsilwise General Landuse in Osmanabad District.

<table>
<thead>
<tr>
<th>Landuse categories</th>
<th>Year and volume of change in%</th>
<th>Osmania- bad</th>
<th>Kalam</th>
<th>Omarga</th>
<th>Tuljapur</th>
<th>Parenada</th>
<th>Bhum</th>
<th>Osmanabad district</th>
</tr>
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<tbody>
<tr>
<td>Area under forest</td>
<td>1970-75</td>
<td>01</td>
<td>05</td>
<td>03</td>
<td>07</td>
<td>03</td>
<td>05</td>
<td>24</td>
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<tr>
<td></td>
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<td>(0.08)</td>
<td>(0.41)</td>
<td>(0.20)</td>
<td>(0.46)</td>
<td>(0.28)</td>
<td>(0.56)</td>
<td>(0.33)</td>
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<tr>
<td></td>
<td>1991-96</td>
<td>02</td>
<td>06</td>
<td>02</td>
<td>16</td>
<td>04</td>
<td>06</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.15)</td>
<td>(0.49)</td>
<td>(0.14)</td>
<td>(1.05)</td>
<td>(0.38)</td>
<td>(0.69)</td>
<td>(0.48)</td>
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<td></td>
<td>volume of change in%</td>
<td>+0.07%</td>
<td>+0.08%</td>
<td>-0.06%</td>
<td>+0.59%</td>
<td>+0.10%</td>
<td>+0.13%</td>
<td>+0.15%</td>
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<tr>
<td>Area not available for cultivation</td>
<td>1970-75</td>
<td>23</td>
<td>20</td>
<td>27</td>
<td>32</td>
<td>22</td>
<td>73</td>
<td>197</td>
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<td></td>
<td></td>
<td>(1.93)</td>
<td>(1.65)</td>
<td>(1.84)</td>
<td>(2.10)</td>
<td>(2.08)</td>
<td>(8.23)</td>
<td>(2.68)</td>
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<tr>
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<td>1991-96</td>
<td>22</td>
<td>30</td>
<td>25</td>
<td>35</td>
<td>37</td>
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<td></td>
<td>(1.66)</td>
<td>(2.44)</td>
<td>(1.71)</td>
<td>(2.30)</td>
<td>(3.57)</td>
<td>(5.52)</td>
<td>(2.65)</td>
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<td>volume of change in%</td>
<td>-0.27%</td>
<td>+0.79%</td>
<td>-0.13%</td>
<td>+0.20%</td>
<td>+1.43%</td>
<td>-2.71%</td>
<td>-0.03%</td>
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<td>Uncultivable land</td>
<td>1970-75</td>
<td>43</td>
<td>123</td>
<td>96</td>
<td>235</td>
<td>61</td>
<td>117</td>
<td>675</td>
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<td></td>
<td></td>
<td>(3.60)</td>
<td>(10.02)</td>
<td>(6.55)</td>
<td>(15.42)</td>
<td>(5.78)</td>
<td>(13.19)</td>
<td>(9.18)</td>
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<tr>
<td></td>
<td>1991-96</td>
<td>39</td>
<td>214</td>
<td>41</td>
<td>228</td>
<td>18</td>
<td>66</td>
<td>606</td>
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<td></td>
<td></td>
<td>(2.94)</td>
<td>(17.44)</td>
<td>(2.80)</td>
<td>(14.96)</td>
<td>(1.71)</td>
<td>(7.44)</td>
<td>(8.10)</td>
</tr>
<tr>
<td></td>
<td>volume of change in%</td>
<td>-0.66%</td>
<td>+7.42%</td>
<td>-3.75%</td>
<td>-0.46%</td>
<td>-4.07%</td>
<td>-5.75%</td>
<td>-1.08%</td>
</tr>
<tr>
<td>Fallow land</td>
<td>1970-75</td>
<td>338</td>
<td>174</td>
<td>142</td>
<td>327</td>
<td>148</td>
<td>101</td>
<td>1230</td>
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<tr>
<td></td>
<td>1991-96</td>
<td>105</td>
<td>235</td>
<td>64</td>
<td>165</td>
<td>29</td>
<td>75</td>
<td>673</td>
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<tr>
<td></td>
<td></td>
<td>(7.92)</td>
<td>(19.15)</td>
<td>(4.37)</td>
<td>(10.83)</td>
<td>(2.75)</td>
<td>(8.45)</td>
<td>(8.99)</td>
</tr>
<tr>
<td></td>
<td>volume of change in%</td>
<td>-20.39%</td>
<td>+4.97%</td>
<td>-5.32%</td>
<td>-10.65%</td>
<td>-11.28%</td>
<td>-2.94%</td>
<td>-7.74%</td>
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<tr>
<td>Cultivated land or net sown area</td>
<td>1970-75</td>
<td>789</td>
<td>905</td>
<td>1197</td>
<td>923</td>
<td>821</td>
<td>591</td>
<td>5226</td>
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<td></td>
<td></td>
<td>(66.08)</td>
<td>(73.76)</td>
<td>(81.72)</td>
<td>(60.56)</td>
<td>(77.83)</td>
<td>(66.63)</td>
<td>(71.08)</td>
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<tr>
<td></td>
<td>1991-96</td>
<td>1158</td>
<td>742</td>
<td>1333</td>
<td>1080</td>
<td>967</td>
<td>691</td>
<td>5971</td>
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<td>(87.33)</td>
<td>(60.48)</td>
<td>(90.98)</td>
<td>(70.86)</td>
<td>(91.65)</td>
<td>(77.90)</td>
<td>(79.78)</td>
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<td>volume of change in %</td>
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<td>-13.28%</td>
<td>+9.26%</td>
<td>+10.30%</td>
<td>+13.82%</td>
<td>+11.27%</td>
<td>+8.70%</td>
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<tr>
<td>Total Geographical area</td>
<td>1970-75</td>
<td>1194</td>
<td>1227</td>
<td>1465</td>
<td>1524</td>
<td>1055</td>
<td>887</td>
<td>7352</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(100)</td>
<td>(100)</td>
<td>(100)</td>
<td>(100)</td>
<td>(100)</td>
<td>(100)</td>
<td>(100)</td>
</tr>
<tr>
<td></td>
<td>1991-96</td>
<td>1326</td>
<td>1227</td>
<td>1465</td>
<td>1524</td>
<td>1055</td>
<td>887</td>
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<td>(100)</td>
<td>(100)</td>
<td>(100)</td>
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<td>(100)</td>
</tr>
</tbody>
</table>

Source: Computed by the Author.
(Figures in the brackets indicates percentages.)
2) Area Not Available for Cultivation:

This categories includes (a) the land put to non-agricultural uses and (b) barren and uncultivable land. These uses show that these areas will be no more available for crop cultivation. These areas which are not available for crop cultivation show a close association with other uncultivated land and the net sown area in Osmanabad district. It means if there is a change at all more net sown area will be transferred to this categories and this may happen particularly due to increasing urbanization predominantly the spread of the cities of Osmanabad, Tuljapur, Omerga and Kallam. The land under this category can not be brought under cultivation but for a very high price it can be brought under cultivation.

About 19700 hectares of land was not available for cultivation in Osmanabad district during 1970-75. During 1991-96 about 19800 hectares of land or 2.65% of the total geographical area came under this categories. As mentioned in chapter II region of Balaghat range particularly in Bhum, Kallam, Osmanabad and Tuljapur is not suitable for agriculture. The proportion of area not available varies from tahsil to tahsil. Below 2% geographical area was under this categories in Osmanabad (1.66%) and Omerga (1.71%) tahsils in the last quinquennium. About 2% to 4% area was found under not available for cultivation in Tuljapur (2.3%) and Parenda (3.51%) tahsils where as above 4% geographical area was found under this group in Bhum (5.52%) during the last quinquennium (Map 4.4 A).

Both positive and negative changes were experienced in area not available for cultivation during the period of twenty five years. Below 1% negative change in area not available for cultivation was noticed in Osmanabad, Omerga tahsils while above 1% negative change was found in Bhum tahsil from 1970-75 to 1991-96. Below 1% positive change in area not available for cultivation was noticed in Tuljapur and Kallam tahsils where as above 1% positive change in this categories was experienced in Parenda tahsil during the period of investigation (Map 4.4 B). Most of the farmers are very poor in the study region, hence, they are unable to bring this land under cultivation.
3) Other Uncultivable Land (Excluding fallow land):

Other uncultivable land excluding fallow land consists three types of land viz. (a) culturable waste (b) permanent pasture and grazing land and (c) land under miscellaneous trees crops etc. In the ensuing discussion they are considered together. This is potential agricultural land which will be available for extention of agriculture but not been cultivated owing to different reasons.

During 1970-75 about 67500 hectares land was under this categories. Other uncultivable land was decreased from 67500 hectares to 60600 hectares between 1970-75 and 1991-96. It means that other uncultivable land was decreased by 1.08% during the period of twenty five years.

The spatial distribution of other uncultivable land was shown in map 4.5A. This map shows that area under this categories varies from tahsil to tahsil. Below 5% geographical area was found under this group in Parenda (1.71%), Omerga (2.8%) and Osmanabad (2.94%) tahsils where as 5% to 10% geographical area was experienced in Bhum tahsil under uncultivable land during 1991-96. Out of total geographical area above 10% area was found under uncultivable waste land in Tuljapur (14.96%) and Kallam (17.44%) tahsils in the last quinquennium (Map 4.5A).

Below 1% negative change in uncultivable land was noticed in Tuljapur and Osmanabad tahsils while above 1% negative change in uncultivable land was experienced in Omerga (3.75%), Parenda (4.07%) and Bhum (5.75%) tahsils during the period of investigation. Above 5% positive change in uncultivable land was found in Kallam (7.42%) from 1970-75 to 1991-96. The negative change was found in Osmanabad, Omerga, Tuljapur, Parenda and Bhum tahsils due to increase in population pressure.

4) Fallow Land:

The fallow land includes current fallow land and old fallow land are largely found due to inadequate water supply or excess of moisture supply, extensive holdings and heavy clayey soils difficult for tilling at proper time. Sometimes, 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. Taking into consideration the period of fallow land, Census of India has divided this categories into two types, viz. land kept fallow during one year is called current fallow land and when it kept fallow for 1 to 5 years it is called as permanent fallow land. However, in the present study, both the sub-categories are grouped together.

During 1970-75 about 123000 hectares or 16.73% land was under fallow land in the study region. The proportion of fallow land varies from tahsil to tahsil. Out of total geographical area below 5% area was found under fallow land in Parenda (2.75%) and Omerga (4.37%) tahsils where as 5% to 10% geographical area was experienced under fallow land in Osmanabad (7.92%) and Bhum (8.45%) tahsils during 1991-96. Above 10% geographical area was under fallow land in Tuljapur (10.83%) and Kallam (19.15%) tahsils in the last quinquennium (Map 4.6 A). The highest fallow land was observed in Kallam (19.15%) where as the lowest fallow land was experienced in Parenda (2.75%) during 1991-96. Fallow land was decreased by 7.74% in the entire study region. Only negative change was experienced in all tahsils in the study region except Kallam during the period of twenty five years. Below 5% negative change was found in fallow land in Bhum (2.94%) tahsil where as 5% to 10% negative change in fallow land was experienced in Omega tahsil from 1970-75 to 1991-96. About 10% to 22% negative change in fallow land was noticed in Tuljapur, Parenda and Osmanabad tahsils during the period of investigation. Due to the population pressure fallow land was reduced in every tahsil in the study region except Kallam tahsil. About 4.97% positive change in fallow land was noticed in Kallam tahsil from 1970-75 to 1991-96 (Map 4.6 B).

5) Net Sown Area:

This category and fallow land together constitute the extent of cropped land in any region and therefore, is of vital significance in studies relating to agricultural geography. The net sown area is the actual area under crops counting areas sown more than once in the same year only once. At glance
OSMANABAD DISTRICT

NET SOWN AREA
1991-96

INDEX:

- ABOVE 80%
- 65% - 80%
- BELOW 65%
- R.A. 79.78%

VOLUME OF CHANGE IN NET SOWN AREA
1970-75 TO 1991-96

INDEX:

- ABOVE +20%
- +10% TO +20%
- BELOW +10%
- ABOVE -10%
- R.A. +8.70%

MAP NO. 4-7
at table 4.1 depicting Osmanabad's general landuse instantly reveals that net sown area occupies the share 79.78% in the region's geographical area. However, it is higher than Maharashtra's average of 58.30%.

Net sown area was increased from 522600 hectares to 597100 hectares during the period of twenty five years. Below 65% geographical area was experienced under net sown area in Kallam (60.47%) tahsil where as 65% to 80% net sown area was found in Tuljapur and Bhum tahsils during 1991-96. Above 80% net sown area was found in Osmanabad, Parenda and Omerga tahsils in last quinquennium (Map 4.7 A).

Below 10% positive change in net sown area was found in Omerga tahsil where as 10% to 20% positive change in net sown area was noticed in Tuljapur, Bhum and Parenda tahsils from 1970-75 to 1991-96. Above 20% positive change in net sown area was found in Osmanabad district while above 10% negative change was experienced in Kallam tahsil during the period of investigation (Map 4.7 B). Population pressure is increased in every tahsil hence, net sown area has increased to a greater extent. There was great dry famine over the entire study region in 1972-73 therefore net sown area was decreased during the first quinquennium (1970-75).

4.5 Tahsilwise per Capita Net Sown Area in the Study Region:

Table 4.2 gives us idea about tahsilwise per capita net sown area in Osmanabad district during the last three decades. Table 4.2 clearly shows that there was an increase of 1.25% per year in the population of study region during the last three decades. Per capita net sown area was 0.63 hectare in 1971 in the study region. It was decreased from 0.63 hectares to 0.55 hectares in 1981 and 0.49 hectare in 1991. Per capita net sown area varies from tahsil to tahsil. The highest per capita net sown area was found in Parenda (1.05 hectare) tahsil while the lowest per capita net sown area was found in Osmanabad (0.45 hectare) tahsil in 1971. In 1981 the lowest per capita net sown area was observed in Osmanabad (0.44 hectare) tahsil while the highest per capita net sown area was noticed in Parenda (0.77 hectare) tahsil. In 1991 below 0.40 hectare per capita net sown area was
experienced in Osmanabad tahsil on the other hand 0.40 to 0.50 hectare per capita net sown area was observed in Kallam, Omerga and Tuljapur tahsils. Above 0.50 hectare per capita net sown area was noticed in Bhum and Parenda tahsils in 1991. Table 4.2 indicates that per capita net sown area was decreased in every tahsil to a greater extent during the period of three decades.

**Table 4.2 : Tahsilwise Per Capita Net Sown Area.**

(Figures of population and net sown area are in '00')

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>O'bad</td>
<td>2000</td>
<td>882</td>
<td>0.45</td>
<td>2340</td>
<td>1039</td>
<td>0.44</td>
<td>2970</td>
<td>1162</td>
<td>0.39</td>
</tr>
<tr>
<td>Kallam</td>
<td>1610</td>
<td>926</td>
<td>0.57</td>
<td>1750</td>
<td>974</td>
<td>0.55</td>
<td>2080</td>
<td>882</td>
<td>0.42</td>
</tr>
<tr>
<td>Omerga</td>
<td>2160</td>
<td>1177</td>
<td>0.56</td>
<td>2300</td>
<td>1080</td>
<td>0.48</td>
<td>2880</td>
<td>1324</td>
<td>0.46</td>
</tr>
<tr>
<td>Tuljapur</td>
<td>1570</td>
<td>867</td>
<td>0.55</td>
<td>1720</td>
<td>928</td>
<td>0.54</td>
<td>2190</td>
<td>1101</td>
<td>0.50</td>
</tr>
<tr>
<td>Parenda</td>
<td>1080</td>
<td>1131</td>
<td>1.05</td>
<td>1160</td>
<td>892</td>
<td>0.77</td>
<td>1400</td>
<td>975</td>
<td>0.70</td>
</tr>
<tr>
<td>Bhum</td>
<td>910</td>
<td>828</td>
<td>0.91</td>
<td>1020</td>
<td>751</td>
<td>0.74</td>
<td>1290</td>
<td>790</td>
<td>0.61</td>
</tr>
<tr>
<td>O'bad dist</td>
<td>9280</td>
<td>5813</td>
<td>0.63</td>
<td>10300</td>
<td>5664</td>
<td>0.55</td>
<td>12760</td>
<td>6234</td>
<td>0.49</td>
</tr>
</tbody>
</table>

Source: *Computed by the Author.*

In fact, the per capita net sown area has decreased during the span of three decades to a greater extent. The policy implication of decreasing per capita net sown area is that the pressure of population on land is increasing and ways and means have to found out to increase productivity of available land for meeting the growing food needs of the region. It is possible through adopting new farm technology in the entire study region.

### 4.6 Volume of Change in Landuse from 1970-75 to 1990-95:

Taking into consideration all the landuse categories it will be useful at this stage to measure the overall volume of change of landuse from 1970-75 and 1990-95. Index of volume of change in landuse is indicated by A/B where 'A' is the summation of differences of percentage of landuse categories of increase and 'B' is that of decrease for the period of
investigation. A and B should be same but of opposite signs\textsuperscript{15}. This overall volume include the land actually involved in the transfer from one category to the other category. Naturally, where this volume is greater we can say that more dynamic conditions exist there.

Table No. 4.3 : Volume of Change in Landuse : 1970-75 to 1991-96

<table>
<thead>
<tr>
<th>Name of the tahsil</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Osmanabad</td>
<td>21.32</td>
</tr>
<tr>
<td>Kallam</td>
<td>13.29</td>
</tr>
<tr>
<td>Omerga</td>
<td>9.26</td>
</tr>
<tr>
<td>Tuljapur</td>
<td>11.09</td>
</tr>
<tr>
<td>Parenda</td>
<td>11.40</td>
</tr>
<tr>
<td>Bhum</td>
<td>15.35</td>
</tr>
</tbody>
</table>

Source : Calculated by the Author.

Table 4.3 and map 4.8 clearly indicates that Bhum and Osmanabad have shown dynamic change (above 15\%) in general landuse pattern. Tuljapur, Parenda and Kallam tahsils have shown semi dynamic (10\% to 15\%) change where as static change was occurred in Omerga tahsil during the period of twenty five years.

4.7 Landuse Efficiency :

The proportion of potential agricultural land (uncultivated land) decreased from 9.18\% to 8.10\% between 1970-75 and 1991-96. There is scope for extention of cultivated land by bringing fallow and potential agricultural land under cultivation. Therefore, immediate need is to give more emphasis on intensity of cropping and increasing yield from existing calculated area. Problem of under use of net sown area, low productivity and risk of crop failure are taxing the rural population, therefore, it is fruitful to investigate the degree of intensity with which the net sown area is utilized.

Landuse efficiency may be defined as the extent to which the net sown area is cropped or resown. The gross cropped area as a percentage of the
net sown area gives a measure of landuse efficiency which means the intensity of cropping\textsuperscript{16}.

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. 4.4 : Statement Showing Landuse Efficiency in Osmanabad District.**

<table>
<thead>
<tr>
<th>Name of the Tahsil</th>
<th>1970-75</th>
<th>1991-96</th>
<th>Vol. of change in landuse efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gross cropped area</td>
<td>Net sown area</td>
<td>Index of landuse efficiency</td>
</tr>
<tr>
<td>O'bad</td>
<td>825</td>
<td>789</td>
<td>104.56</td>
</tr>
<tr>
<td>Kallam</td>
<td>962</td>
<td>905</td>
<td>106.30</td>
</tr>
<tr>
<td>Omerga</td>
<td>1320</td>
<td>1197</td>
<td>110.27</td>
</tr>
<tr>
<td>Tuljapur</td>
<td>1053</td>
<td>923</td>
<td>114.08</td>
</tr>
<tr>
<td>Parenda</td>
<td>866</td>
<td>821</td>
<td>105.48</td>
</tr>
<tr>
<td>Bhum</td>
<td>684</td>
<td>591</td>
<td>115.74</td>
</tr>
</tbody>
</table>

O'bad dist. 5710 5226 109.26 6759 5971 113.20 +3.94

Source: *Computed by the Author.*

Table 4.4 reveals that region's average gross cropped area and net sown area was 6 lakh 76 thousand hectares and 5 lakh 97 thousand hectares respectively during 1991-96. The index of landuse efficiency was 113.20% during 1991-96 landuse efficiency index was increased by 3.94% in the study region during the period of investigation. During 1970-75 below 110% landuse efficiency was observed in Osmanabad, Kallam and Parenda tahsils on the other hand 110% to 116% landuse efficiency was experienced in other tahsils of the study region. Indices of landuse efficiency was increased in every tahsil except Bhum and Kallam tahsil from 1970-75 to 1991-96. Below 110% landuse indices was observed in Osmanabad and Kallam tahsils while 110% to 115% indices was experienced in Parenda and Bhum tahsils during 1991-96. In last quinquennium above 115% landuse efficiency was
observed in Tuljapur and Omerga tahsils. Variation in landuse efficiency are mainly confined to the irrigational possibilities, pattern of agricultural practices, crops and limitations imposed by the physical environment as the soil types, physiography and nature of rainfall distribution etc. The regional average seems to be small, it is lower than state’s figure of 117.10%. On the strength of percentage the region is divided into three categories viz. Low intensity, medium intensity and high intensity.

i) Areas of Low Intensity (Below 110%):  
Areas of low intensity are distributed in Osmanabad and Kallam tahsils. Percentage of irrigation, physiography, soil condition, use of chemical fertilizers, pesticides, high yielding variety seeds all these factors are responsible for low intensity.

ii) Areas of Medium Intensity (110% to 115%):  
Areas of medium intensity are confined to Parenda and Bhum tahsils. Physiography, barren land soil condition, minor irrigation schemes and use of manures etc. are responsible for the medium intensity in Parenda and Bhum tahsils.

iii) Areas of High Intensity (above 115%):  
High intensity was observed in Omerga and Tuljapur tahsils. Physical and non-physical factors are responsible for the high intensity of landuse.

4.8 Summary:

i) Due to the location and physical setting the general landuse pattern of the region under study region differs from tahsil to tahsil. The existing pattern of landuse as shown in map 4.1 appears to have been resulted from a process of land exploitation within the frame of physical-socio-economic complex and modified by the expansion of irrigation and the growth of population.

ii) Below 1% negative change in other uncultivable land was noticed in Tuljapur and Osmanabad tahsils while above 1% negative change in uncultivable land was experienced in Omerga (3.75%), Parenda (4.07%) and Bhum (5.75%) tahsils during the period of investigation. Area under
uncultivable has been decreased due to cutting miscellaneous trees from 1970-75 to 1991-96.

iii) Out of the total geographical area below 5% land was found under fallow land categories in Parentha and Omerga tahsil where as 10% to 20% fallow land was recorded in other tahsils during 1991-96. The study region has shown about 7.74% negative change in fallow land from 1970-75 to 1991-96. It was experienced due to the increase of population pressure on land. It is also essential to bring more fallow land under cultivation within the short period and to raise agricultural productivity.

iv) Table 4.2 indicates that per capita net sown area was decreased in every tahsil to a greater extent from 1971 t 1991. It is essential to control population growth by adopting family planning techniques in the study region.

:: References ::


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