Abstract
"A Geographical Study of Agricultural Land use in Nashik District, Maharashtra State"

1) Introduction:

The study of oilseed cultivation in Nandgaon Tahsil of Nashik district, has been carried out by the student for his M.Phil deseration. It is worth to analyse all cropping pattern, change in area under agriculture and the yield and productivity in the district as a whole. Therefore a further study entitled "A Geographical Study of Agricultural Land use in Nashik District, Maharashtra State" has been carried out.

The study of agricultural activity is mainly introduced in a separate branch of Human geography, i.e. Agricultural Geography. In this branch the study of various agricultural practices, their methods, types and factors are included.

In India the agricultural sector has shown a great deal of achievement in the last three decades. Hence there are some problems faced by the Indian agriculture such as, availability of water supply, sufficient credit and market facilities, advanced knowledge of technology etc.

The high standard deviation of rainfall and its uneven distribution are the most important constraints in development of agriculture. The poor economic condition of Indian farmers and limited credit facilities play important role for the lack of development of agriculture.

Maharashtra is one the important State in India from the agricultural point of view. The western and central part of Maharashtra state shows good achievement in agriculture. The commercial crops like sugarcane, cotton, oilseeds are cultivated on a large scale in this part. But in the eastern and southern part (Marathwada & Vidarbha), agriculture is still under developed, due to lack of irrigation and geographical constraints. During 1991 about 1.85 core peoples were
engaged in agriculture, while in 2001-2002 it is 2.65 core people in Maharashtra were engaged in agricultural activity. During 1998-99 about 57.6% geographical area was found under cultivation, while in the year 2005-06 the area was about 63.08% in Maharashtra State.

2) Choice of Topic:

The present topic selected for Ph.D. Degree in Geography is entitled as, "A Geographical study of Agricultural Landuse in Nashik District, Maharashtra State," It is mainly based on the dynamics of agricultural landuse in Nashik district with the help of quantitative data. The present study may help to understand the regionalization, levels of commerlerization and micro level analyses of agricultural development in Nashik District.

The economy of Nashik District is mainly agrarian in character. There are approximately 74% people were engaged in agricultural activity. The geographical factors like physiography, climate, soils play very important role regarding the agricultural landuse in Nashik District. So the study of agricultural landuse of this region helps to understand the overall balance for the development of agriculture.

3) The Study Region:

The Nashik district of Maharashtra state has been selected for the present study. Nashik District comprising of fifteen Tahsils, with a significant location. The study region is situated partly in the Tapi Basin and partly in the upper Godavari Basin. The area lies between 19° 35' and 20° 50' north latitude and 73° 30' and 74° 55' east longitude. It is surrounded by Dhule District in the north, Jalgaon district and Aurangabad District in east, Ahmednagar District in South east and Gujrat State in the north-west.

The Nashik District has occupied an area of 15582.00 sq.km. According to 1991 census. The total population of the Nashik district
was 38,51,352, in which includes 1904973 Male and 1866379 Female population. In 2001 the total population was 4993176, having 259112 Male and 2402884 Female Population. The density of population was 322 per sq.km. The literacy rate was 74.15% in 2001, which includes 83.98% urban literacy and 16.79 rural literacy rate.

Nashik District has 15 tahsils with 18 towns, 1931 inhabited villages, 10 habaitied villages. The table no. 1.1 shows the Tahsils, Area and population in Nashik District in 2001.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Thasils</th>
<th>Area in Sq.km</th>
<th>Male Population</th>
<th>Female Population</th>
<th>Total Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Peth</td>
<td>560.60</td>
<td>48580</td>
<td>48194</td>
<td>96774</td>
</tr>
<tr>
<td>2</td>
<td>Trambak</td>
<td>810.57</td>
<td>69043</td>
<td>67374</td>
<td>136417</td>
</tr>
<tr>
<td>3</td>
<td>Nashik</td>
<td>810.57</td>
<td>702075</td>
<td>615292</td>
<td>1317367</td>
</tr>
<tr>
<td>4</td>
<td>Igatpuri</td>
<td>846.32</td>
<td>117184</td>
<td>111024</td>
<td>228208</td>
</tr>
<tr>
<td>5</td>
<td>Sinnar</td>
<td>1352.61</td>
<td>151355</td>
<td>140720</td>
<td>292075</td>
</tr>
<tr>
<td>6</td>
<td>Niphad</td>
<td>1053.65</td>
<td>227653</td>
<td>212989</td>
<td>439842</td>
</tr>
<tr>
<td>7</td>
<td>Yeola</td>
<td>1064.47</td>
<td>121497</td>
<td>114024</td>
<td>235521</td>
</tr>
<tr>
<td>8</td>
<td>Surgana</td>
<td>845.65</td>
<td>72988</td>
<td>72147</td>
<td>145135</td>
</tr>
<tr>
<td>9</td>
<td>Kalwan</td>
<td>859.71</td>
<td>83891</td>
<td>81718</td>
<td>165609</td>
</tr>
<tr>
<td>10</td>
<td>Deola</td>
<td>576.94</td>
<td>67356</td>
<td>62632</td>
<td>129988</td>
</tr>
<tr>
<td>11</td>
<td>Baglan</td>
<td>1477.83</td>
<td>159969</td>
<td>151426</td>
<td>311395</td>
</tr>
<tr>
<td>12</td>
<td>Malegaon</td>
<td>1825.13</td>
<td>405559</td>
<td>383671</td>
<td>789230</td>
</tr>
<tr>
<td>13</td>
<td>Nandgaon</td>
<td>1089.82</td>
<td>122119</td>
<td>114200</td>
<td>236319</td>
</tr>
<tr>
<td>14</td>
<td>Chandwad</td>
<td>958.73</td>
<td>105980</td>
<td>99209</td>
<td>205189</td>
</tr>
<tr>
<td>15</td>
<td>Dandori</td>
<td>1342.19</td>
<td>13566</td>
<td>129064</td>
<td>264727</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15530.00</td>
<td>42590912</td>
<td>2402884</td>
<td>4993796</td>
</tr>
</tbody>
</table>
4) **Hypothesis** :

The agricultural landuse in Nashik district with a view to evaluate the influence of certain physical environment as well as economic factors on the distributional pattern. In the study area agricultural landuse changed through time and space. There is a strong influence of physical and socio-economic factors on agricultural landuse in Nashik District. Therefore it is necessary to understand the present agricultural pattern and to suggest a proper planning strategy for overall agricultural development using change in cropping pattern and improvement in yield and production. Thus it may be hypothesized that the cost benefit and agricultural ladanuse can helps the development.

5) **Objectives** :

The present study is based on the spatio-temporal change in general and agricultural landuse in Nashik district. The problems and prospects of agricultural development, related geographical factors. The following objectives are formulated for the present study :

a) To assess the impact of physical factors on Landuse and agricultural pattern in the study area.

b) To assess the impact of population characteristics and its effects on landuse and agriculture in the study region.

c) To understand the agricultural pattern in the area.

d) To analyses the influence of nonphysical determinante on agricultural landuse in the study area.

e) To carry out cost benefit analyses of major crops in the district.

f) To suggest the planning regions at micro-level and 'Action Plans' for the development of agricultural.
6) **Methodology:**

The main objectives of the present study is to design planning strategy for agricultural development based on local resources. The study involve the following steps.

i) **Field Study:**

The reconnaissance survey will be carried out to understand the facts regarding the agricultural setup and marketing system.

The sample surveys will be carried out to understand the cost structure of some important crops, through the questionnaire, the information regarding input and output of the agricultural product of the farmers collected.

ii) **Analysis of Data:**

The parametric approach will be adopted to understand the association between landuse and other socio-economic variables. For the same, multivariate quantative techniques are used. The parameters related to agricultural landuse, soil fertility, irrigation status, market facility etc. would be taken into account for the quantative analyses.

The secondary data for areal strength of the important crops over a period of fifteen years will be collected and processed. This will give the idea regarding spatio-temperol changes if any in the cropping pattern of the study area. Regional classification at micro-level will be carried out on the basis of physiographic and socio-economic Variables. This will help to understand problematic & prospective regions for agricultural development.

iii) **Cost Benefit Study:**

The 'Action Plan' of the study region will also be justified on the basis of the study of agricultural input and output marketed by the
farmers. The cost structure of some important crops like Rice, Wheat, Jawar, Bajra, Pulses and Oilseeds can be obtained.

7) **Chapter two :-**

The Second chapter deals with the location of the study area and boundaries. Geology and Topography of the study region. There are three broad physiographic division of the study region. a) The mountain hilly region, b) The Godavari Basin, iii) The Girna Basin. The study of drainage pattern also includes in this chapter. There are three broad division of drainage pattern in Nashik District.

i) The Godavari and its tributaries.

ii) The Girna and its tributaries.

iii) The Kokan rivers.

The climate of the study region and its impact on agricultural also studied. The soils types the district includes back deep soil, Red course or Laterite soil, Light shallow soil with some natural vegetation like plants, bushes and grasses, which grow naturally under various physical conditions. The irrigation facilities available in the study area through various major, medium and minor projects. There are 08 major projects in the district which have 2,11,827 hectares area under irrigation, 62 medium projects with 3,57,599 hectares area under irrigation, 130 minor project with 77138 hectares irrigated area and 1203 Kolhapur type projects with 20389 hectares of irrigated area.

The study of population included in this chapter. The growth & distribution of population, Density of population, sex ratio, and Literacy. The transport network also studied here.

8) **Chapter three :-**

The third chapter deals with the general and agricultural landuse in Nashik district. the study of general landuse based on five categories
like area under forest, Area not available for cultivation, fallow land, Net sown area.

The tahsil wise trends in general landnuse taken into consideration and calculated the volume of change in various landuse categories from 1990-91 to 2007-08. The five year moving averages in every Tashil calculated and found positive and negative volume of change. The co-relation matrix at Tashil levels also calculated and shows positive and negative co-relation between various landuse categories in the study area.

The study of agricultural landuse in Nashik District includes the major cropping pattern of the region, Spatio-temporal change in cropping pattern co-relation matrix of cropping pattern and regression analysis with suitable method.

The various tables shows area & volume of chage in major crops in Nashik District from 1990-91 to 2007-08. The five year moving averages calculated and find out the change in area under Rice, Wheat, Jawar, Bajra, Paluses, Sugarcane, Oilseeds & Net sown area. The positive or negative co-relation between various crops also calculated.

9) Chapter four :-

The Forth chapter includes the Agricultural productivity and yield, of various crops at Thasil levels. The yield of some crops in kg per hectors shows in table. The average yield and its relation to physico-climate factors also studied in this chapter. The cost benefit structers and commercialization of agricultural in Nashik District also include here. The cost benefit calculated from the data available from various market yards in the study region. the arrivals of major crops at various market yards and their average prices per quintal compared with the cost of fertilizers, seeds, labour & transport for the same crops shows the positive or negative benefit of the crops cultivated in the study area.
10) Chapter five :-

The Fifth chapter includes with the planning strategy suggested at micro-level. For this a case study of Nandgaon Thasil has been carried out. For the planning and management of agricultural activity at micro-level a case-study of one of the drought prone thasil in the study region selected. This thasil show that the effective planning strategy can change the agricultural scenario of any part of the country. Nandgaon Tahsil is located in north east corner of the District, having less availability of less rainfall and lack of irrigation facilities. The spatio-temporal changes in the cropping pattern and its relation with physico-climatic factors. There is some suggestion for improvement in agricultural productivity and yield also helps to the other part of the district.

11) Chapter Six:-

The Sixth chapter includes the summary and conclusion of the study. The geographical study of agricultural landuse in Nashik District helps to understand the problems and prospects of agricultural at micro-level.

Concluding Remarks :

The present study conclude that, it is necessary develop cost effective majors to achieve agricultural development. Agricultural fails even here and wherever cost of input exceeds output. The output is fluctuating with time & space because of fluctuating in productivity and market prices, as observed in the present study.

In same tahsiles are types of crop shows good productivity but other have low productivity. Therefore it is suggested to go for, a cropping pattern which can give more output in a given physiographic and socio-economic environment. It is further suggested that to
stablised the market prices of agricultural goods, so that farmers can plan the agricultural activity with proper expectations.

With these concluding remarks and suggestions. It may be concluded that the hypotheses, stated in the beginning is accepted on the bases of analyses of available information.