PART - III

PATTERN OF AGRICULTURAL REGIONALISATION
CHAPTER 4

LAND USE PATTERN

4.0 Land Use

4.1 General Land Use

4.2 Agricultural Land Use
4.0 Land Use:

The criticality of land in national development is clear from a statement of the late Srimati Indira Gandhi in 1972 who said, "We can no longer afford to neglect our most important natural resources. This is not simply an environmental problem but one which is basic to the future of our country. The stark question before us is whether our soil will be productive enough to sustain a population of one billion by the end of this century at higher standards of living than now prevail. We must have long term plans to meet this contingency." Due to the exploding population, soil is used increasingly posing a threat to its productivity. Careless use damages the soil with consequent reduction in quality and quantity of woodland, grass land and crop land; soil erosion and degradation of watersheds and catchments, deforestation

75. Khoshoo (1986): "Environmental Priorities in India and Sustained Development", Indian Science Congress Association, p. 11
and desertification; and rural development not based on principles of conservation. One basic fact that cannot be ignored is that land is a finite resource and it is very essential that land use is properly planned. We, therefore, need a national policy on land (soil) with short and long range objectives. Land is used by man for many purposes out of which agricultural land use is as old as human civilization. Many a time agricultural regionalization is done on the basis of the colour, texture and structure of the soil e.g., black soil region, red soil region, etc. The geographical area generally can be used for forest, pastures, gardens, fallow, etc. According to the demands of the society, technological innovations may inspire new uses of the land. These may be of short duration or permanent.

The land utilization of Pellary district is confined to the essential ingredients of land use, i.e., crop combination, crop concentration, ranking of crops, crop diversification, agricultural productivity and efficiency, land capability, conservation of land and land use planning (these are explained in different chapters).
4.1 General Land Use:

During 1985-86 the district had a total geographical area of 9,54,766 hectares, out of which forest area was 1,17,416 hectares (12.30 per cent vide Figs. 12 and 13). Fallow land 75,210 hectares (7.88 per cent), Land not available for cultivation, 1,20,163 hectares (12.59 per cent), Cultivable waste 30,702 hectares (3.12 per cent) and Wet Sown area 6,11,275 hectares (64.02 per cent).

Forest:

The area under this category of land use did not change in the study period from 1975-76 to 1985-86. It is natural because Bellary district is known for its arid and semi arid conditions. The forests, in fact, are very poor both spatially and qualitatively. It contributes hardly 12.30 per cent to the total geographical area of the district (vide tables 12 and 13). When compared, this is very low both to the State and National averages. Talukawise percentage area under forest to the geographical area indicates that Sandur with 26.56 per cent ranks first followed by Hospet (26.28 per cent), Kudligi (21.46 per cent), Harpanahalli (15.64 per cent), Hadagalli (5.0 per
Fig. 12

Bellary District
Land Utilization
1975-76

- Net Sown Area
- Forest
- Fallow Land
- Land Not Available for Cultivation
- Cultivable Waste

Legend:

- 63-50%
- 12-30%
- 7-54%
- 12-91%
- 6-38%

Scale:
0 20 40 60 80 Kms

150,000 Hectares
100,000 Hect
50,000 Hect
BELLARY DISTRICT
LAND UTILIZATION
1985-86

- NET SOWN AREA
- FOREST
- FALLOW LAND
- LAND NOT AVAILABLE FOR CULTIVATION
- CULTIVABLE WASTE

150,000 HECTARES
100,000 HECT
50,000 HECT

Fig. 13
### Table - 12

**Bellary District:**

**Talukewise Land Utilisation in 1975-76**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Taluka</th>
<th>Net Sown Area</th>
<th>Forest</th>
<th>Fallow Land</th>
<th>Land not Available for Cultivation</th>
<th>Cultivable Waste</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bellary</td>
<td>1,26,477</td>
<td>2,877</td>
<td>17,480</td>
<td>16,135</td>
<td>6,058</td>
<td>1,69,027</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(72.58)</td>
<td>(1.70)</td>
<td>(11.84)</td>
<td>(10.55)</td>
<td>(4.03)</td>
<td>(100.00)</td>
</tr>
<tr>
<td>2.</td>
<td>Hadagalli</td>
<td>72,427</td>
<td>4,738</td>
<td>5,040</td>
<td>10,381</td>
<td>2,267</td>
<td>94,853</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(73.86)</td>
<td>(5.00)</td>
<td>(11.65)</td>
<td>(4.18)</td>
<td>(5.31)</td>
<td>(100.00)</td>
</tr>
<tr>
<td>3.</td>
<td>Magari-Bommanahalli</td>
<td>60,133</td>
<td>4,482</td>
<td>3,419</td>
<td>24,965</td>
<td>4,437</td>
<td>97,435</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(59.50)</td>
<td>(5.89)</td>
<td>(5.71)</td>
<td>(25.12)</td>
<td>(4.86)</td>
<td>(100.00)</td>
</tr>
<tr>
<td>4.</td>
<td>Harpanahalli</td>
<td>93,211</td>
<td>22,230</td>
<td>4,566</td>
<td>15,476</td>
<td>7,543</td>
<td>1,43,024</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(63.06)</td>
<td>(16.05)</td>
<td>(3.09)</td>
<td>(11.50)</td>
<td>(7.00)</td>
<td>(100.00)</td>
</tr>
<tr>
<td>5.</td>
<td>Hospet</td>
<td>43,645</td>
<td>24,970</td>
<td>9,319</td>
<td>11,935</td>
<td>3,568</td>
<td>93,337</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(45.22)</td>
<td>(25.76)</td>
<td>(9.56)</td>
<td>(14.95)</td>
<td>(4.49)</td>
<td>(100.00)</td>
</tr>
<tr>
<td>6.</td>
<td>Kudligi</td>
<td>87,818</td>
<td>33,661</td>
<td>14,687</td>
<td>15,284</td>
<td>8,256</td>
<td>1,59,706</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(53.20)</td>
<td>(21.08)</td>
<td>(9.30)</td>
<td>(11.40)</td>
<td>(5.02)</td>
<td>(100.00)</td>
</tr>
<tr>
<td>7.</td>
<td>Sandur</td>
<td>42,729</td>
<td>24,118</td>
<td>2,505</td>
<td>19,821</td>
<td>3,732</td>
<td>92,905</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(43.80)</td>
<td>(25.40)</td>
<td>(2.50)</td>
<td>(25.14)</td>
<td>(4.06)</td>
<td>(100.00)</td>
</tr>
<tr>
<td>8.</td>
<td>Sirguppa</td>
<td>79,810</td>
<td>340</td>
<td>9,054</td>
<td>9,257</td>
<td>5,817</td>
<td>1,04,278</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(76.54)</td>
<td>(0.33)</td>
<td>(8.50)</td>
<td>(8.80)</td>
<td>(5.73)</td>
<td>(100.00)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>6,06,250</td>
<td>1,17,416</td>
<td>66,070</td>
<td>1,23,254</td>
<td>41,778</td>
<td>9,54,766</td>
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<tr>
<td></td>
<td></td>
<td>(63.50)</td>
<td>(12.30)</td>
<td>(6.92)</td>
<td>(12.91)</td>
<td>(4.38)</td>
<td>(100.00)</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Name of the Taluka</td>
<td>Net Sown Area</td>
<td>Forest Land</td>
<td>Cultivable Land</td>
<td>Land not Available for cultivation</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>------------------</td>
<td>--------------</td>
<td>-------------</td>
<td>-----------------</td>
<td>-----------------------------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Bellary</td>
<td>1,27,986</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Hadagalli</td>
<td>2,877</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Harkapatnamalli</td>
<td>64,145</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>4.</td>
<td>Hospet</td>
<td>51,634</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Kudalur</td>
<td>89,923</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Sandur</td>
<td>59,653</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Siriguppa</td>
<td>14,234</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>6,11,275</td>
<td></td>
<td></td>
<td></td>
<td>6,11,275</td>
<td></td>
</tr>
</tbody>
</table>

Area in Hectares. Figures in brackets are percentages.
cent), Hagaribommanahalli (4.60 per cent), Bellary (1.76 per cent) and the least is Sirguppa (0.33 per cent). It is needless to say that in order to maintain a balanced environment and ecology of the region some more percentage of land should be brought under forest, especially by converting the waste land. Social forestry can be of benefit to this region.

**Fallow Land:**

The term fallow is applied to lands which are not under crops at the time of reporting though it was sown in the immediate past. Fallow lands are generally divided into two classes - old fallow lands which comprise those lands that have been left uncultivated for more than five years, and the new fallow lands which include lands that were not sown at the time of crop reporting but were sown one or two years before or left fallow either in one season or for one complete year to replenish the soil fertility. Fallow lands are prone to regular changes from year to year, particularly those which are under cultivation of sugarcane for which the land has to be left fallow at least for a year.

Bellary district had a fallow land of 66,070 hectares (6.92 per cent to the total geographical area) in the year
1975-76, whereas it rose to 75,210 hectares (7.88 per cent) in the year 1985-86. Therefore there is a net increase of 9,140 hectares (13.83 per cent). The occurrence of fallow land is more in Bellary district because it has both dry and wet conditions. Due to dryness the land falls fallow as there is inadequate supply of moisture to germinate and to grow crops, whereas in the wet tract the irrigation used erroneously by the poor illiterate farmers leads to seepage of water resulting in alkalinity and salinity conditions of soil, discouraging cultivation. The maximum fallow land during 1975-76 was 17,480 hectares (26.46 per cent) in Bellary taluka. On the other hand a minimum was found in Sandur taluka with 2,505 hectares (3.79 per cent) (vide table 14). But during the year 1985-86 the maximum fallow land was 24,711 hectares (33.30 per cent) again in Bellary taluka the minimum fallow land was 1,280 hectares (1.72 per cent) in Harpanahalli taluka. The volume of change of the fallow land over a period of ten years in the entire Bellary district increased by 8,240 hectares (13.83 per cent). Kudligi and Harpanahalli talukas had witnessed a decline of 8,176 and 3,286 hectares respectively. The decline might be due to the policies of the
Karnataka Government which provided fallow land to the landless agricultural workers for cultivation (and also due to good rains at the time of sowing season so that the crop reporting shows that fallow had declined) besides the efforts by the other farmers (land holders) who always work hard to bring their fallow land under cultivation.

Land Not Available for Cultivation:

The land under this class comprises those lands which are put to non-agricultural uses such as settlements, burial grounds, play grounds, railways, roads, embankments, etc. During 1975-76 the district had 1,23,254 hectares (12.90 per cent to the total geographical area) of land not available for cultivation, whereas it decreased to 1,20,169 hectares (12.59 per cent) by the year 1985-86. The taluk-wise analysis shows that during 1975-76 Hagaribommanahalli had the highest hectarage 24,965 (20.25 per cent) of this category of land. The lowest was found in Sirguppa taluka with 9,257 hectares (7.52 per cent). During 1985-86 it was highest again in Hagaribommanahalli with 23,235 hectares (19.34 per cent) and the lowest was also again in Sirguppa taluka with 8,370 hectares (6.96 per cent). The district as a whole witnessed a decrease of 3,085 hectares of
land in this category. This indicates that there was some improvement in the agricultural land use in the district by using modern technology.

Cultivable Waste:

This category of land includes permanent pastures, grazing lands and miscellaneous tree groves. The district had an area of 41,766 hectares (4.38 per cent to the total geographical area) in the year 1975-76. This decreased to 27,723 hectares (3.21 per cent) by the year 1985-86. During this period, therefore the net decline was 14,054 hectares (33.64 per cent to the cultivable waste of 1975-76). This phenomenon explains the judicious use of land by the farmers. This is really a good sign of the development of agriculture in the district. The talukawise volume of change indicates that except Hospet taluka all the remaining talukas had lost their area under this category of land use. In Hospet taluka due to excessive use of irrigation the soil structure must have been upset. A maximum of reduction in the cultivable waste land was in Bellary taluka (4,185 hectares) and a minimum was in Hadagalli taluka (520 hectares). (For details of waste land see Appendix kept in special packet at the end of thesis).
Net Sown Area:

Agricultural land is the backbone of the economy of the district. Agriculture is the most important occupation of the rural population and to some extent the urban. Out of the total geographical area of the district 6,05,250 hectares (63.50 per cent) was the net sown area in the year 1975-76, whereas it increased to 6,11,275 hectares (64.02 per cent) in the year 1985-86. This resulted in a net increase of land under this category by 5,025 hectares (0.52 per cent). The taluka level analysis of the area under this category shows a decline of 8,275 hectares in Hadagalli taluka followed by Sandur (207 hectares) and Hospet (1,472 hectares) (vide Fig. 14). The reasons for such decline in these talukas are different. In case of Hadagalli taluka, there was the shifting of some area to Hagaribommanahalli taluka and in Hospet taluka the arable land was reduced because of seepage and marshiness by irrigation so that the area was left out as fallow. In Sandur taluka the mining activity is more profitable than the tillage hence there is reduction in arable land. On the other hand, the remaining talukas had gained in the area under this class. The maximum gain was by Harpanahalli with 6,782 hectares.
BELLARY DISTRICT
PERCENTAGE CHANGES IN LAND UTILIZATION
1975-76 to 1985-86

Fig. 14

FALLOW LAND
LAND NOT AVAILABLE FOR CULTIVATION

CULTIVABLE WASTE
NET SOWN AREA

VERY HIGH
HIGH
MEDIUM
LOW
VERY LOW

BELLARY DISTRICT
PERCENTAGE CHANGES IN LAND UTILIZATION
1975-76 to 1985-86

FALLOW LAND
LAND NOT AVAILABLE FOR CULTIVATION

CULTIVABLE WASTE
NET SOWN AREA

VERY HIGH
HIGH
MEDIUM
LOW
VERY LOW

Fig. 14
followed by Kudligi 5,754 hectares. Hagaribommanahalli, Sirguppa and Bellary talukas of the district have gained marginally. Bellary district is known for its drought in the State so that the cultivation of crop under rainfed conditions is most erratic and uneven from season to season and also from taluka to taluka. Whenever rainfall conditions improve naturally the area under crops would be more and the chances of fallow would be reduced. If it is the other way the chances of fallow is more and thereby area under crop is reduced. The area under net sown is increased in irrigated talukas like Bellary and Sirguppa due to the wise use of water and management of soil without spoiling it. This, of course, is a good sign in agricultural development.

4.2 Agricultural Land Use:

The land, which is used for cultivation of crops is known as agricultural land use or crop land use. The agricultural land use indicates the producing capacity of a particular crop in the existing agroclimatic conditions of a region. The cultivable land under different crops in Bellary district bears not only a close relationship with physical, agroclimatic conditions but also economical social and infrastructural facilities of agriculture.
In a decadal span of time (1975-76 to 1985-86) there is a considerable variation under crop land use in the district. The net sown area increased by 5,025 hectares (0.52 per cent). This is due to the acquiring of dry grass lands and dry scrub lands for agriculture, which was distributed to landless labourers. It is seen from the table that the area under cereals increased only marginally and it is 964 hectares (0.30 per cent) (vide Table 15). The cereals are drought resistant and as such they are cultivated both in dry and wet tracts so that the area under these crops can be more. Pulses have shown a high degree of increase because this group of crops is not only drought resistant but also leguminous. The increase of area under pulses is 14,137 hectares (42.37 per cent). These can be cultivated not only as single crops but also mixed with other crops. In addition the market value of these crops is very high. Therefore farmers prefer this group of crops. The cost of cultivation is also low. The cash crops also have shown an increasing tendency with 6,638 hectares (6.50 per cent). Though sugarcane reduced drastically, cotton increased (due to high yield and high price) to a considerable extent. It is cultivated both in dry and wet conditions, so
**Table-15**

**Bellary District**

Area Under Major Groups of Crops in 1975-76 and 1985-86

<table>
<thead>
<tr>
<th>Years</th>
<th>Net Sown Area in Hects.</th>
<th>Cereals * (In Hects.)</th>
<th>Pulses *1 (In Hects.)</th>
<th>Oil Seeds *2 (In Hects.)</th>
<th>Cash Crops *3 (In Hects.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975-76</td>
<td>6,06,250 (100.00)</td>
<td>3,23,094 (53.89)</td>
<td>33,359 (5.50)</td>
<td>1,47,584 (24.34)</td>
<td>1,02,203 (16.86)</td>
</tr>
<tr>
<td>1985-86</td>
<td>6,11,275 (100.00)</td>
<td>3,24,058 (53.01)</td>
<td>47,506 (7.77)</td>
<td>1,30,855 (21.41)</td>
<td>1,08,841 (17.81)</td>
</tr>
</tbody>
</table>

Change to the base year + or -
- 5,025 (0.52) + 964 (0.30) + 14,137 (42.37) - 16,719 (11.33) + 6,638 (6.50)

* Rice, Jowar, Ragi, Bajra, Wheat and Other Cereals are included
*1 Tur, Gram, Horse Gram, etc. are included
*2 Groundnut and Other Oil Seeds (Safflower, Castor, Sesamum etc.) are included
*3 Cotton and Sugarcane are included.
that the area under cash crops registered an increase. On the other hand the area under oil seeds have registered a decline with 16,719 hectares (11.33 per cent). This is attributed to a large number of diseases and lack of moisture at the time of growth and non possibility of cultivating mixed crops.

Spatio Temporal Changes in Area of Different Crops in the District From 1975-76 to 1985-86:

Jowar (Sorghum Vulgare):

It requires moderate annual rainfall of 30 - 100 cms. and high temperature of 27-32°C for germination and healthy growth. It cannot grow if temperature is less than 16°C. Both excessive moisture and prolonged drought are harmful. It is par-excellence a crop of dry farming areas grown mostly without irrigation support. The crop is grown on a variety of soils but black soils are considered to be most ideal for this crop. Rainfed Kharif jowar matures in 4.5 to 5 months. The Rabi crop is raised on the moisture retentive black and red loamy soils. Under irrigated conditions the crop requires 3 to 3.5 months to grow and mature. Jowar is the staple food crop of Bellary district. It is a drought resistant crop. The crop can
grow both in dry and wet conditions. It can also grow on all types of soils provided there is adequate amount of moisture in the soil at the time of sowing and growing. The district has a lion's share of 1,43,113 hectares (23.41 per cent) under this crop in 1985-86. In both the years of study i.e., 1975-76 and 1985-86 it ranks first in relation to other crops of the district (vide table 16 and 17). Though it is the first ranking crop there is a considerable decrease of 11,884 hectares (7.67 per cent to 1975-76). This is due to inadequate moisture in the soil at the time of sowing in the rainfed talukas. During 1985-86 Bellary taluka had the highest hectarage of 29,992 (20.96 per cent) under jowar. The least area under jowar was in Hospet 5,179 hectares (3.62 per cent).

The talukawise spatio-temporal data under jowar indicate that out of eight, four talukas (vide Fig. 15) (Hagaribommanahalli, Hadagalli, Sirguppa and Sandur) have gained in the area under this crop, whereas the remaining four talukas (Kudligi, Hospet, Bellary and Harpanahalli) have reduced their area. This has a great bearing in the practice of agriculture in the talukas of the district. The highest increase of 1,675 hectares (15.35 per cent to the base year) is found in Hagaribommanahalli
BELLARY DISTRICT
PERCENTAGE CHANGES OF CROP LANDUSE
1975-76 to 1985-86

RICE

JOWAR

RAGI

WHEAT

BAJRA

OTHER CEREALS

GROUNDNUT

OTHER OILSEEDS

PULSES

COTTON

SUGARCANE

% CHANGE

VERY HIGH

HIGH

MEDIUM

LOW

VERY LOW

Fig. 15
## Table No. 6

**Bellarly District:**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Taluka</th>
<th>Jowar</th>
<th>Cotton</th>
<th>Ground Nut</th>
<th>Other Cereals</th>
<th>Other Oil Seeds</th>
<th>Rat</th>
<th>Pulses</th>
<th>Rice</th>
<th>Bajra</th>
<th>Sugar Cane</th>
<th>'heat</th>
<th>Total Net Sown</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bellary</td>
<td>33,045</td>
<td>14,958</td>
<td>10,558</td>
<td>10,202</td>
<td>10,341</td>
<td>300</td>
<td>3,747</td>
<td>20,194</td>
<td>5,410</td>
<td>354</td>
<td>9,920</td>
<td>1,26,477</td>
</tr>
<tr>
<td>2.</td>
<td>Hadagalli</td>
<td>21,114</td>
<td>17,204</td>
<td>24,535</td>
<td>2,000</td>
<td>3,401</td>
<td>250</td>
<td>1,000</td>
<td>1,250</td>
<td>2,900</td>
<td>296</td>
<td>292</td>
<td>72,436</td>
</tr>
<tr>
<td>3.</td>
<td>Nagarabommasahalli</td>
<td>10,910</td>
<td>3,420</td>
<td>14,490</td>
<td>12,499</td>
<td>7,703</td>
<td>2,540</td>
<td>4,500</td>
<td>1,950</td>
<td>1,600</td>
<td>78</td>
<td>343</td>
<td>60,135</td>
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<td>4.</td>
<td>Farpanshalli</td>
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<td>20,800</td>
<td>12,452</td>
<td>4,125</td>
<td>6,100</td>
<td>11,242</td>
<td>8,981</td>
<td>1,702</td>
<td>424</td>
<td>394</td>
<td>510</td>
<td>93,211</td>
</tr>
<tr>
<td>5.</td>
<td>Hospet</td>
<td>9,372</td>
<td>2,848</td>
<td>1,341</td>
<td>8,990</td>
<td>2,000</td>
<td>35</td>
<td>3,041</td>
<td>6,146</td>
<td>1,558</td>
<td>6,289</td>
<td>1,534</td>
<td>43,645</td>
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<tr>
<td>6.</td>
<td>Kudalga</td>
<td>25,522</td>
<td>15,253</td>
<td>20,128</td>
<td>4,966</td>
<td>6,440</td>
<td>1,825</td>
<td>5,010</td>
<td>1,263</td>
<td>5,899</td>
<td>176</td>
<td>375</td>
<td>87,818</td>
</tr>
<tr>
<td>7.</td>
<td>Sandur</td>
<td>8,828</td>
<td>3,742</td>
<td>2,375</td>
<td>9,452</td>
<td>3,777</td>
<td>2,528</td>
<td>4,609</td>
<td>1,170</td>
<td>6,000</td>
<td>282</td>
<td>258</td>
<td>42,729</td>
</tr>
<tr>
<td>8.</td>
<td>Sirguppa</td>
<td>10,840</td>
<td>13,890</td>
<td>9,640</td>
<td>15,656</td>
<td>4,892</td>
<td>-</td>
<td>2,272</td>
<td>7,251</td>
<td>2,400</td>
<td>2,359</td>
<td>79,810</td>
<td></td>
</tr>
<tr>
<td></td>
<td>District Total</td>
<td>1,54,997</td>
<td>92,154</td>
<td>1,03,530</td>
<td>68,800</td>
<td>44,054</td>
<td>18,842</td>
<td>33,299</td>
<td>40,272</td>
<td>24,491</td>
<td>10,500</td>
<td>15,692</td>
<td>60,06,259</td>
</tr>
</tbody>
</table>

**Figures in brackets are percentages**

**Area in Hectares**

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The table provides details of crop land use for various talukas in Bellary District, Telangana, India, for the year 1975-76. The data includes the area sown in each crop category along with percentages of total net sown area. The table helps in understanding the distribution and importance of different crops in the region.
**Table No. 17**

Bellary District-
Taluka-wise Crop Land Use 1985-86

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Taluka</th>
<th>Jowar</th>
<th>Cotton</th>
<th>Groundnut</th>
<th>Other Cereals</th>
<th>Other Oil Seeds</th>
<th>Ragi</th>
<th>Pulses</th>
<th>Rice</th>
<th>Bajra</th>
<th>Sugarcane</th>
<th>Wheat</th>
<th>Total Net Sown Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
<td>(9)</td>
<td>(10)</td>
<td>(11)</td>
<td>(12)</td>
</tr>
<tr>
<td>1</td>
<td>Bellary</td>
<td>29,992</td>
<td>45,233</td>
<td>4,345</td>
<td>11,651</td>
<td>13,341</td>
<td>6,810</td>
<td>10,350</td>
<td>5,298</td>
<td>300</td>
<td>405</td>
<td>1,27,665</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Hadagili</td>
<td>22,548</td>
<td>12,527</td>
<td>8,514</td>
<td>2,585</td>
<td>5,298</td>
<td>4,314</td>
<td>80</td>
<td>279</td>
<td>-</td>
<td>737</td>
<td>64,154</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Hagaribommanshalli</td>
<td>12,465</td>
<td>4,220</td>
<td>15,672</td>
<td>10,107</td>
<td>8,703</td>
<td>2,139</td>
<td>5,667</td>
<td>16,59</td>
<td>16</td>
<td>51,524</td>
<td>99,993</td>
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<tr>
<td>4</td>
<td>Harpanahalli</td>
<td>25,477</td>
<td>17,952</td>
<td>5,949</td>
<td>6,789</td>
<td>7,107</td>
<td>25,077</td>
<td>9,204</td>
<td>1,673</td>
<td>110</td>
<td>97</td>
<td>538</td>
<td>42,173</td>
</tr>
<tr>
<td>5</td>
<td>Hospet</td>
<td>5,179</td>
<td>6,239</td>
<td>3,030</td>
<td>4,235</td>
<td>2,429</td>
<td>890</td>
<td>4,323</td>
<td>9,114</td>
<td>3,128</td>
<td>3,409</td>
<td>288</td>
<td>42,173</td>
</tr>
<tr>
<td>6</td>
<td>Kodligi</td>
<td>15,154</td>
<td>7,425</td>
<td>15,768</td>
<td>15,466</td>
<td>10,073</td>
<td>13,056</td>
<td>8,728</td>
<td>699</td>
<td>399</td>
<td>33,572</td>
<td>93,572</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Sandur</td>
<td>9,699</td>
<td>1,705</td>
<td>1,425</td>
<td>5,930</td>
<td>5,871</td>
<td>5,254</td>
<td>5,277</td>
<td>621</td>
<td>3,333</td>
<td>174</td>
<td>100</td>
<td>40,599</td>
</tr>
<tr>
<td>8</td>
<td>Sirguppa</td>
<td>21,179</td>
<td>8,257</td>
<td>13,214</td>
<td>6,508</td>
<td>6,292</td>
<td>2,251</td>
<td>14,346</td>
<td>3,810</td>
<td>1,278</td>
<td>385</td>
<td>81,234</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>District Total</strong></td>
<td>143,113</td>
<td>103,568</td>
<td>70,117</td>
<td>66,641</td>
<td>60,749</td>
<td>50,334</td>
<td>47,905</td>
<td>37,704</td>
<td>22,521</td>
<td>5,278</td>
<td>3,145</td>
<td>6,11,275</td>
</tr>
</tbody>
</table>

Figures in brackets are percentages.
taluka followed by Hadagalli, Sirguppa and Sandur talukas (vide table -18). On the other hand Kudligi taluka had reduced by 9,368 hectares (36.71 per cent to the 1975-76) followed by Hospet, Harpanahalli and Bellary talukas 4,193 hectares (44.74 per cent), 3,053 hectares (9.24 per cent) and 893 hectares (3.39 per cent) respectively. Much of this land has been occupied by other cereals especially maize. However, the crop is stable in the entire district as it gives food to the people and fodder to the cattle for the whole year.

Cotton (Gossypium):

Cotton can be grown in tropical and sub-tropical areas with 75 to 250 cms. of annual rainfall and 21 to 45°C temperature. The heaviest concentration of this crop occurs in areas with 50 to 80 cms. of annual rainfall and 20 to 35°C temperature. The crop can be grown even in the drier areas with irrigation. Cotton plants need sufficient rainfall in the early stages of growth but a sunny and dry weather is required after flowering. Moist weather during the boll-opening and harvesting periods is detrimental to the plant rendering it vulnerable to pests and diseases. Temperatures below 20°C retard the plant
growth and frost proves fatal to it. The crop does not tolerate water logging and, the soil therefore has to be drained. Some tillage and manuring is necessary before the crop is sown by broadcast or by drills. Most of the crop is raised during kharif season, grown mixed with maize, jowar, ragi, sesame, castor, groundnut and even vegetables. Bellary district had an area of 92,154 hectares in the year 1975-76 which rose to 1,03,568 hectares in 1985-86. This means there is a net increase of 11,415 hectares (12.39 per cent to 1975-76). In the past ten years cotton is gaining more importance in the district due to the introduction of high yielding varieties in irrigated farms. The maximum increase of area under cotton was in Bellary taluka (which had an area of 14,396 hectares in 1975-76 raised to 45,233 hectares in 1985-86) with an area of 30,837 hectares, which amounts to 214.21 per cent in a span of ten years. So also Hospet taluka had registered an increase of 119.07 per cent over the period Hagaribommanahalli taluka by 23.39 per cent. (Vide Table 18.)

In the remaining talukas of the district the area under cotton is reduced. Maximum reduction was found in Kudligi taluka (54.32 per cent to the 1975-76) followed by Sandur, Sirguppa, Hadagalli and Harpanahalli talukas of the district.
Groundnut (Arachis hypogea):

Groundnut can be grown successfully in areas with 50 to 75 cm of rainfall and 20 to 30°C temperature. The crop can be cultivated on red loamy, and red sandy and shallow black soils. Groundnut is raised both as Kharif and Rabi and it is the crop of 3 to 4 months. This is also one of the leguminous crops. There are many varieties in the crop. In the irrigated region the crop can be cultivated in summer. The district had an area of 1,03,530 hectares (17.08 per cent to the net sown area) during 1975-76, whereas it was 70,117 hectares (11.47 per cent to the net sown area) in 1985-86. This indicates a decline of an area of 33,413 hectares under groundnut. Talukawise area under the crop indicates that out of eight talukas five had reduced their area. The maximum reduction was in Hadagalli taluka which was 16,021 hectares (65.30 per cent to the 1975-76) and the minimum was in Sandur taluka with 950 hectares. On the other hand, Sirguppa taluka had gained a maximum of 3,574 hectares and a minimum gain was in Hagari-bommanahalli taluka. A substantive reason for this is the availability of minimum irrigation facilities during summer.
Other Cereals:

This group of crops includes pearl millet, ral, maize, burga, etc., which are grown under highly varied climatic and soil conditions. These crops are grown both in Kharif and rabi seasons. These need 20-30°C temperature and 50-70 cms. annual average rainfall. During 1975-76 the district had 68,800 hectares (11.35 per cent to the net sown area), under these minor millets. But in the year 1985-86 they are reduced to 66,641 hectares (10.90 per cent to the net sown area). In this period there is a net decline of 2,159 hectares (3.14 per cent). The talukawise data on these crops indicate that Kudligi had gained a maximum of 10,500 hectares and a minimum was gained in Bellary taluka by 1,449 hectares. On the other hand a maximum reduction was found in Sirguppa taluka with 8,058 hectares and a minimum reduction under these crops was found in Hagaribommanahalli taluka with 2,392 hectares by 1985-86.

Other Oil Seeds:

This group of crops include castorseed (Risinus Communinis), Sesamum (Sesamum indicum), Rapeseed and Mustered (Brassnisa Compestristoria and Competris Juneca) and linseed
(linum usitatissimum). All these oil seeds can grow in a minimum of 21°C temperature, moderate rainfall (50 to 75 cms.) and on varieties of soils. They grow both in Kharif and Rabi seasons along with other crops. The district had an area of 44,054 hectares (7.27 per cent to net sown area) under these crops in the year 1975-76 whereas they occupied 60,748 hectares (9.94 per cent to the net sown area) in the year 1985-86. Therefore, there was a net increase of 16,694 hectares area under these crops (58.84 per cent to the year 1975-76). Talukawise data under other oil seeds indicate that all talukas of the district had gained in the area. It is noticeable that the maximum gain was in Kudligi taluka with 5,635 hectares, whereas a minimum was in Hospet taluka with 429 hectares.

Ragi (Eleusive Coracana):

It is one of the hardiest crops grown in dry as well as wet farming. It requires an average annual rainfall of 50 to 100 cms. and temperature of 20-30°C. It can be cultivated in red sandy and shallow black and red loamy soils. Kharif ragi is grown from May to August or July to November. The seeds are sown by seed drill in rows. It requires 3 to 5 months
to mature. During 1985-86 the area under ragi was 50,434 hectares (8.33 per cent to the net sown area). Harpanahalli taluka ranks first in ragi cultivation with 25,057 hectares (49.68 per cent). It is not at all grown in Bellary and Sirguppa talukas. In 1975-76 the area under the crop was 18,842 hectares (3.11 per cent to the net sown area), whereas it rose to 50,434 hectares (8.33 per cent to the net sown area) in the year 1985-86. It can also be a mixed crop either with pulses or with other cereals. The talukewise area under ragi indicates that the crop is most unevenly distributed. In the irrigated talukas the crop is nil to meagre. This means that it is also one of the drought resistant crops so that it stands well in the dry farming talukas. The area under Ragi in Sandur and Hagaribommanahalli talukas have reduced by 11,210 and 1,001 hectares respectively. In all the remaining talukas the area under ragi increased, the maximum being in Harpanahalli taluka with 13,815 hectares and the minimum in Hospet taluka with 834 hectares. It appears that ragi is the best substitute to jowar in ragi growing talukas of the district due to its shorter duration of growth and shallow root system. On the other hand in irrigated talukas the area
under ragi is very negligible as the irrigated land can be used for economically valuable crops.

Pulses:

This category of crops includes tur, gram, green gram, black gram. These crops are grown in arid and semi-arid conditions and can also be grown in irrigated soils. The district had an area of 33,369 hectares (5.51 per cent to the net sown area) under pulses in the year 1975-76, whereas it rose to 47,506 hectares (7.77 per cent to the net sown area) in the year 1985-86. The area under pulses increased during the study period by 14,137 hectares (42.37 per cent to the 1975-76) in Bellary district. These crops are cultivated not only as Kharif and rabi but also mixed with cereals and groundnuts. The taluka-wise analysis indicates that except Harpanahalli taluka all other talukas have increased their area under pulse crops. In Harpanahalli taluka the area got reduced by 737 hectares. In other talukas a maximum of 4,115 hectares was gained by Hadagalli and a minimum of 468 hectares was gained by Sandur. It appears that HYV had been introduced for cultivation. Therefore they were giving better results both in area and production.
Rice (*oryza sativa*):

Rice is principally a tropical crop requiring high temperature and high humidity. Throughout its growth it needs wet soils. If there is any variation in moisture the crop would surely be affected. As a result there is a possibility of frequent fluctuations in its area and yield. It requires 24°C temperature and an average annual rainfall of 150 cms. It can also be grown in areas where rainfall is less than 150 cms. Both transplanting and sowing methods are followed in rice growing talukas of the study area. Since it constitutes one of the important food crops of the people of the district it is essential to analyse its spatio-temporal variations. In Bellary district the total sown area under rice was 37,704 hectares (6.17 per cent) in 1985-86. Out of eight talukas in the district three talukas viz., Bellary, Sirguppa and Hospet have 39.64 per cent, 27.47 per cent and 24.17 per cent of rice area respectively. The remaining five talukas except Harpanahalli (4.4 per cent) have nearly 1 per cent area. In Bellary district there is a decline of 2,568 hectares land under rice from 1975-76 to 1985-86. The change of land under rice shows a maximum
decrease in Bellary taluka by 9,836 hectares, whereas Sirguppa and Hospet talukas have shown increase in rice cultivation by 7,731 hectares and 2,498 hectares respectively.

Generally much of the rice growing area has gone for Cotton cultivation as cotton now-a-days is a more profitable crop than rice. The cost of the cultivation of cotton, however, is more than that of rice. Therefore only rich farmers can afford cotton cultivation, whereas the small and medium land holders have no alternative but rice. However, the crop is stable in the irrigated talukas although there are marginal variations.

**Bajra (Pennisetum Typhoidesum):**

This crop is grown both for food and fodder purposes. Bajra needs dry and warm climate like 25 to 43°C temperature and 40 to 50 cms. of average annual rainfall. It can be cultivated on all types of soils. Bajra is a short seasoned (3-4 months) kharif crop which is sown in June and July and harvested in September or October. The crop can be cultivated with cotton, ragi and jowar. It had an area of 24,491 hectares (4.04% of the net sown area) in 1975-76 which got
reduced to 22,521 hectares (3.68 per cent to the net sown area) in the year 1985-86. There is a decline of 1,970 hectares (8.04 per cent to 1975-76). Except Hagaribommanahalli taluka all the dry farming talukas had reduced the area under the crop. The maximum reduction of 2,697 hectares was found in Sandur taluka and the minimum reduction of 895 hectares was found in Kudligi taluka. On the other hand the irrigated talukas except Bellary, Sirguppa and Hospet had increased their area under Bajra by 2,370 and 1,570 hectares respectively. It appears irrigated conditions are conducive to the cultivation of the crop.

Sugarcane (*Saccharum Officinarum*):

This crop thrives best in tropical regions with 100 to 150 cms. of rainfall well distributed throughout the year. It requires hot and humid weather throughout the growing period. temperatures above 40°C and below 15°C harm the crop and frost proves fatal. It is a long duration crop maturing in 10 to 13 months depending upon climate and the variety of cane. Irrigation is necessary in areas of lower rainfall or even in areas of higher rainfall during dry spells. Well matured medium and
heavy soils of high fertility are preferred for sugarcane cultivation. The crop can be cultivated even on lighter soils and heavy clay provided there is adequate irrigation. It grows on black cotton soils, brown or reddish loams and even on lateritic soils. Dark loams overlying on murum are used for sugarcane cultivation. In the tropical regions with long dry seasons, the growing period is reduced and yields decline. The sugar content decreases if heavy rains continue for long. A slightly dry sunny weather is necessary during the ripening stage of the cane.

The area under sugarcane in the district for the year 1975-76 was 10,050 hectares which was reduced to 5,278 hectares in 1985-86. The net reduction was 4,772 hectares (47.48 percent to the 1975-76). Talukawise data indicate that in all the talukas the area under sugarcane is reduced. The main reasons for this situation are: less attractive prices, constraints in transport of sugarcane to sugar mills, more input cost than other crops.

Wheat (Triticum):

Wheat is another important cereal in the district. It grows under cool climate with 10-15°C temperature and a
moderate rainfall with 50 to 100 cms. Drizzling and cloudiness of the weather is favourable to increase productivity. Shallow black and loamy soils are ideal for cultivation. This is a rabi crop (winter crop). It can also be cultivated as mixed crop.

Though wheat is grown in all the talukas of the district there has been drastic decline in its cultivation. The district had 15,692 hectares (2.59 per cent to the net sown area) in 1975-76 whereas it reduced to 3,145 hectares (0.51 per cent to the net sown area) in the year 1985-86. Therefore there was a net decline of 12,547 hectares in the district as a whole in a span of ten years.

The talukawise data under the crop for the year 1975-76 and 1985-86 clearly indicate that all the irrigated talukas have lost the area but the maximum was in Bellary with 9,516 hectares and the minimum in Hospet taluka with 1,346 hectares. In dry farming talukas, Hadagalli and Kudligi talukas gained by 445 and 13 hectares respectively.
Summary:

Of the total geographical area (1985-86) 64.02 per cent was land under net sown, 12.59 per cent under not available for cultivation, 12.30 per cent under forest, 7.88 per cent under fallow and 3.12 per cent under cultivable wastes. Looking to the data of 1975-76 the net sown area had increased very significantly in the year 1985-86. Therefore, the area under net sown can be increased by reducing the waste land. The crop land use can be made still dynamic if area under irrigation is increased. Once the probable degree of success of particular cropping pattern has been worked out under the given physical and modified physical conditions, socio-economic factors not only determine the adoption of a particular crop land use but also increase range of ecological feasibility of numerous practicable and profitable crops that could be cultivated. The available water resource, especially the underground water has to be tapped in order to make dry land agriculture more economical. So that with less use of water the crop land use can be optimised and farmers can be in the better position within the subsistance level. Both general land use and agricultural
land use should be improved in quality and quantity to maintain the entire related ecology, so that it can help to stop soil erosion, and increase in soil fertility. The lack of immediate availability of satellite imageries bring certain constraints in the minute and micro land use analysis of the Bellary district.