Taking selected villages for Landuse and Cropping studies at micro-level may bring out a special significance in assessing land resources and preparing landuse and agricultural planning. A detailed landuse map illustrating the ground plan of agricultural settlement in contrast to regional setting would certainly help in understanding the agricultural structure of the areas at micro-level. Such an investigation of the spatial organisation of agriculture of selected villages is certainly helpful in making comparisons and contrasts in the utilisation of land resources with the available physico-socio-economic and technological milieu. Recording the existing use of every hectare of the district is not impossible, but it is practically difficult because it involves lot of man power, machinery and organisation. Therefore,
the only alternative is to select some representative villages for a detailed study of land and crop resources.

Selection of Sample Villages:

There are many techniques of sampling for the selection of sample villages and any one of the sampling techniques may be used depending upon the objective of the study. In the diversified geographical conditions of Cuddapah district, the selection of the villages on random sampling may not give a true representative picture of the diversified farming systems. In this situation, the selection of sample villages based on purposive sampling is the most appropriate and suitable for bringing comparisons in the land and cropping systems in the diversified geographical conditions. Therefore, the purposive sampling has been adopted in the present study for the selection of sample villages.

For the purpose of landuse and cropping analysis in Cuddapah district, there are four villages that have been selected from four different strata namely, canal irrigation, tank irrigation, well irrigation and rainfed farming. Mundlapalli village has been selected from K.C. canal irrigated zone; Bayyanapalli village has been selected from tank irrigation; Mandapalli has been selected from well irrigated area and V. Raghavapuram village has been selected from the low rainfall zone of northwestern part of the district.

A detailed knowledge of the landuse and cropping systems of these sample villages may be obtained by studying each one of them at profound level.
Mundlapalli Village:

Mundlapalli is an important village for canal irrigation located in Chennur Mandal. It is 4 kms. away from Cuddapah urban settlement. This village comes under the K.C. canal irrigation system.

Physiographically, Mundlapalli is situated on a relatively low land with a height ranging between 150 and 300 metres from the mean sea level. The slope of the land is gentle. The soils found in this village belong to black and red mixed types.

With an area of 355.5 hectares, the Mundlapalli village has a population of 1226 persons (1981 Census). Thus the density of population is 342 persons per sq. km. Out of the total population, 32 per cent were literates. Out of the total working population of 699 persons, the agricultural population was accounted for 81.6 per cent. It is significant to state that the proportion of agricultural labourers is very high which accounted for 70.7 per cent of the total agricultural population leaving to cultivators only 29.3 per cent. It indicates that the intensive cropping system especially cultivation of paddy in the canal irrigated area calls for more labour force.

Landuse:

Out of the total area of 355.5 hectares, 27.2 hectares of the land of Mundlapalli village is uncultivated and 328.3 hectares of land is cultivated. The uncultivated land accounted for 7.6 per cent of the total area of the village. Out of the non-cultivable land, the wasteland occupied the large share of 76.4 per cent followed by
land under water bodies (8.6%) and roads (6.3%). A significant proportion of wasteland is found around the settlement and all along the road side. Acacia and other thorny bushes are found in the wasteland which are used for firewood purpose by the village dwellers.

Table 11.1a

General Landuse of Mundlapalli Village - 1988-89

<table>
<thead>
<tr>
<th>Landuse type</th>
<th>Area in hectares</th>
<th>Percentage to the total area of the village</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roads</td>
<td>2.6</td>
<td>0.7</td>
</tr>
<tr>
<td>Settlements</td>
<td>1.9</td>
<td>0.5</td>
</tr>
<tr>
<td>Water bodies</td>
<td>2.6</td>
<td>0.7</td>
</tr>
<tr>
<td>Wasteland</td>
<td>23.0</td>
<td>6.5</td>
</tr>
<tr>
<td>Arable land</td>
<td>328.4</td>
<td>91.6</td>
</tr>
<tr>
<td>Total</td>
<td>358.5</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Arable Land:

The area suitable for cultivation in Mundlapalli village is spectacularly high which is evident from the fact that the cultivated land accounted for 91.6 per cent of the total geographical area of the village. The plain topographical conditions of the village
Plate 11.1a Harvesting paddy crop in the canal irrigated area of Mundlapalli village.

Plate 11.1b A view of the mango garden grown in the dry upland tract of Mundlapalli village.
with gentle slope, the development of canal irrigation and fertile soils are the favourable conditions for bringing as much as land available in the village under cultivation. Out of the total cultivated land, about 82 per cent is irrigated and 18 per cent is unirrigated. Canal irrigation is the predominant and the single most source of irrigation in this village. The K.C. canal water from the Tungabhadra Irrigation Project is provided for only one cropping.

**Cropping Pattern:**

Paddy is the predominant crop cultivated under canal irrigation in this village which accounted for 88.8 per cent of the total cultivated area. It is indeed a common phenomena that cultivating paddy in the canal irrigated areas of the State. It shows that paddy is the only sustainable crop under canal irrigation where damp soil conditions as well as water-logging conditions are profusely found. Here, paddy is cultivated at an intensive level in the small size of land holdings with high input application.

**Table 11.1b**

*Cropping Pattern of Mundlapalli Village - 1988-89*

<table>
<thead>
<tr>
<th>Crop</th>
<th>Area in hectares</th>
<th>Percentage to the total cropped area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>291.5</td>
<td>88.8</td>
</tr>
<tr>
<td>Groundnut</td>
<td>33.6</td>
<td>10.2</td>
</tr>
<tr>
<td>Mango</td>
<td>3.3</td>
<td>1.0</td>
</tr>
<tr>
<td>Total</td>
<td>328.4</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Groundnut is the second important crop cultivated both as irrigated and rainfed crop. It accounted for 10.2 per cent of the total cultivated land. As a rainfed crop groundnut is cultivated in the uplands located in the south-eastern and eastern portions of the sample village, where the soils are light and poor in fertility. So in this village groundnut is largely cultivated as a rainfed crop.

The third but the least important crop cultivated in the village is mango fruit which accounted for one per cent of the total cultivated land. The mango gardens are found only in the upland area located in the south-eastern portion of the village. Mango crop is by and large cultivated as a rainfed commercial crop.

From the above analysis it is inferred that whatever the land suitable for agriculture is brought under cultivation because of the development of canal irrigation. Owing to the development of canal irrigation the sustainable and suitable is paddy which is intensively and predominantly cultivated as a mono-crop. The cultivation of other crops is less significant. It shows that the farming in the village has been specialised by cultivating paddy as a mono-crop under canal irrigation. Here it is suggested that the second crop namely, gram cultivation can be brought with the available soil moisture in the rice foliages. This results an improvement in the intensity of cropping, better utilisation of the cropland and diversification of the cropping.
Bayyanapalli Village:

The village Bayyanapalli is located in Badvel mandal and five kilometers away from the Badvel urban settlement. It is a small village with an area of 169.9 hectares and the population 460 persons. The density of population is also low and accounted for 271 persons per sq. km. The literacy rate is also very poor accounted for 20.2 per cent of the total population of the village (1981 Census). Out of the total working population of 200, the agricultural population accounted for 90 per cent. It shows that this settlement is predominantly agricultural in character. Out of the total agricultural population of 180 persons in the village, agricultural labourers are more in number and accounted for 76.1 per cent and where as the cultivators accounted for only 23.9 per cent. The high proportion of agricultural labourers in the village may be due to intensive agricultural operations especially the cultivation of paddy which demands more labourers for its cultivation.

Physiographically, the village is relatively situated on a valley region between Velikonda and Lankamalai hill ranges. The general slope of the village is from gentle to moderate steep. The cultivated area of the village has largely the red soil. Since the village is located in the mountainous area of north-eastern valley, it receives relatively higher rainfall. On account of high rainfall conditions, tank irrigation is an important source of irrigation for the cultivation of different crops in the village.
Landuse:

The village Bayyanapalli has occupied 169.9 hectares of land, out of which, 114.8 hectares are confined to cultivation which accounted for 67.5 per cent of the total area of the village. The uncultivated land accounted for 32.5 per cent.

Table 11.2 a

General Landuse of Bayyanapalli Village - 1988-89

<table>
<thead>
<tr>
<th>Landuse type</th>
<th>Area in hectares</th>
<th>Percentage to the total area of the village</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roads</td>
<td>6.2</td>
<td>3.7</td>
</tr>
<tr>
<td>Settlement</td>
<td>1.6</td>
<td>1.0</td>
</tr>
<tr>
<td>Water bodies</td>
<td>36.0</td>
<td>21.2</td>
</tr>
<tr>
<td>Wasteland</td>
<td>11.3</td>
<td>6.6</td>
</tr>
<tr>
<td>Fallow land</td>
<td>24.0</td>
<td>14.1</td>
</tr>
<tr>
<td>Cropped area</td>
<td>90.8</td>
<td>53.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>169.9</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Uncultivated Land:

An area of 55.1 hectares of land is given to non-agricultural uses. Among non-agricultural uses, the land under water
bodies is significantly high. The area under water bodies covers 36 hectares which accounted for 21.2 per cent of the total geographical area of the village and 65.2 per cent of the total uncultivated area. These figures have indicated that the land under water bodies is the second major landuse category of this village next to cultivation. This large area under water bodies is due to the presence of big irrigation tank which provides water facility for one cropping system. A significant amount of wasteland is also found in and around the settlement which accounted for 6.6 per cent of the total geographical area of the village. The land under roads accounted for 3.7 per cent and settlements 1 per cent of the total area of the village. It is observed that the housing pattern is very congested and without much spacing from one house to another house. As a result the land under settlement is deplorably insignificant. And also it is observed that the acacia plant is well grown in the wasteland distributed around the settlement. This species which grown in the wastelands nearby the settlement is especially meant for firewood purpose. The quality of the house type is very poor and almost all the houses are thatched houses.

Arable Land:

The land suitable for cultivation has 114.8 hectares. The cultivable land left out as fallow is amounted to 24 hectares or 21 per cent of the total arable land. The fallow land is found here and there where the depth of the soil is thin, rocky exposure and poor in fertility as well as soil erosion is severe. The lands left
out as fallow lands are also found with rigged surface and moderate steep slope conditions. A large proportion of cropped land is found under the ayacut of tank irrigation as well as around the settlement.

Irrigation:

Tank is the predominant source of irrigation for the cultivation of crops in the village. It is evident from the fact that tank irrigation is accounted for 88 per cent of the total irrigated area of the village. Since this village is located in the high rainfall zone of north-eastern valley, the tank gets substantial amount of water through rainfall. Suppose if the tank is not filled-up by rainfall water, the water from Badvel tank may be diverted to this tank in order to provide protective irrigation facilities for one cropping system. It shows that the irrigation supplemented by tank is almost constant and advantageous for the cultivation of important crops. Irrigation supplemented by well is another important source which accounted for 12 per cent of the total irrigated area. On the whole the irrigated land accounted for 62.1 per cent of the total cultivated area and the remaining 37.9 per cent land is rainfed.

Cropping Pattern:

The important crops cultivated in the village are paddy, groundnut, ragi, turmeric, fruits and vegetables. Of all these crops, paddy is the single largest crop cultivated in the village. It accounted for 72.5 per cent of the total cropped area of the village. Paddy cultivation is successfully harvested with the help
Plate 11.2a  Cultivation of paddy at intensive level in the small fields and supply of irrigation from the village tank at Bayyanapalli village.

Plate 11.2b  A view of the irrigation tank of Bayyanapalli village. It is in dry condition as it is summer season.
of tank irrigation. Almost all the paddy fields are found under ayacut of tank irrigation. The operation of paddy cultivation may be started only after getting water in the tank and this is usually noticed in the months of September and October. Only one crop is raised under the ayacut of tank irrigation. Due to protective irrigation facilities with high input application and use of good quality lands for paddy, the yield level of paddy is significantly high. The second important crop grown in the village is groundnut which accounted for 14.8 per cent of the total cultivated area of the village. It is cultivated as an irrigated crop under well irrigation. Ragi is the third important crop grown in the village. It accounted for 6.2 per cent of the total cultivated area. Its cultivation is found in the poorer soils and uplands. The cultivation of turmeric at intensive level under well irrigation is also significant in the village. It accounted for 5.2 per cent of the total cropped area. The cultivation of fruits and vegetables is limited and accounted for 1.3 per cent of the total cropped area of the village.

Table 11.2b

<table>
<thead>
<tr>
<th>Crop</th>
<th>Area in hectares</th>
<th>Percentage to the total cropped area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>65.9</td>
<td>72.5</td>
</tr>
<tr>
<td>Groundnut</td>
<td>13.5</td>
<td>14.8</td>
</tr>
<tr>
<td>Ragi</td>
<td>5.7</td>
<td>6.2</td>
</tr>
<tr>
<td>Turmeric</td>
<td>4.6</td>
<td>5.2</td>
</tr>
<tr>
<td>Vegetables</td>
<td>1.2</td>
<td>1.3</td>
</tr>
<tr>
<td>Vegeitables</td>
<td>90.9</td>
<td>100.0</td>
</tr>
</tbody>
</table>
From the above analysis it is observed that the lands which are fertile with gentle slope found in and around the settlement are brought under cultivation. The lands located in the peripheral areas of the settlement found with eroded soil, low fertility, undulating terrain and stony exposures are also brought under cultivation but they are marginal in agricultural character. The cultivation of these marginal lands depends upon rainfall conditions. The development of these marginal lands also depends upon the socio-economic conditions of the farmers. From the empirical investigation it may be stated that the farmers of this village are almost illiterates and poor in socio-economic conditions. That too they are not aware of the techniques of dryland farming. If the socio-economic conditions of the agricultural population are improved and the farmers are trained in the new methods of dryland farming, there is a great scope for effective utilisation of land resources in this village.

Mandapalli Village:

Mandapalli is a very small village but it is an important village for well irrigation. It is located in Sidhout mandal which is 8 km. away from Sidhout mandal head quarter. With an area of 322.7 hectares and a population of 88 persons, the density of population of the village is 27 persons per sq. km. Indeed it is a very low density of population. The literacy rate is deplorably poor which accounted for 12 per cent of the total population. The total working population of the village completely confined to agricultural sector. It reveals that agriculture is the only occupation for the livelihood of the
dwellers of this village. The total agricultural population of this village consisted small and marginal farmers. The size of land holdings is very small.

Phisiographically, Mandapalli village is located on a relatively upland plain with moderate steep slope. In the northern and eastern parts of the village the slope is gentle with plain topographical condition as well as with deep soils. Red soil is the dominant soil type found in the village. In the western and southern parts of the village the land is highly elevated and undulating type with eroded soils and stony exposures. The good quality of agricultural land is found in the northern and south-eastern parts of the village where the land holdings are small and intensively cultivated with commercial crops. In the central, western and southern parts of the village, the quality of the land is poor to medium category which requires some soil and water conservation measures.

Landuse:

Mandapalli is an agricultural village where 62 per cent of the land is suitable for cultivation and 38 per cent is uncultivated.

Wasteland is the prominent landuse category among non-agricultural uses in the village. With an area of 66.8 hectares, wasteland accounted for 20.7 per cent of the total geographical area of the village. This category of landuse is found around the settlement, and all along the roads and streams. The land under water
LAND USE PATTERN OF
Mandapalli

Legend:
- Waste Land
- Fallow Land
- Water Bodies
- Settlements
- Paddy
- Turmeric
- Plantain
- Groundnut

Scale: 0 km
6 km
bodies is another important non-agricultural landuse type and accounted for 9.3 per cent of the total area of the village. This significant proportion of land under water bodies is due to the presence of number of small stream running in north-south direction. All these streams are non-perennial. The land under roads and settlements is negligible which accounted for 0.4 per cent and 0.5 per cent respectively to the total geographical area of the village. Since the number of houses are very few and congested and without any open spacing from one house to another house, the land under this category is negligible.

Table 11.3a

General Landuse of Mandapalli Village - 1988-89

<table>
<thead>
<tr>
<th>Landuse</th>
<th>Area in hectares</th>
<th>Percentage to the total area of the village</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roads</td>
<td>1.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Settlement</td>
<td>1.6</td>
<td>0.5</td>
</tr>
<tr>
<td>Water bodies</td>
<td>30.1</td>
<td>9.3</td>
</tr>
<tr>
<td>Forest</td>
<td>23.0</td>
<td>7.1</td>
</tr>
<tr>
<td>Wasteland</td>
<td>66.8</td>
<td>20.7</td>
</tr>
<tr>
<td>Fallow land</td>
<td>106.7</td>
<td>33.1</td>
</tr>
<tr>
<td>Cultivated land</td>
<td>93.1</td>
<td>28.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>322.7</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Arable Land:

The land suitable for agriculture in Mandapalli village is amounted to 199.8 hectares which accounted for 62 per cent of the total area of the village. The land suitable for agriculture is consisted of cultivated land and fallow land. In 1988-89, the cultivated land with an area of 93.1 hectares was accounted for 28.9 per cent of the total geographical area of the village. But the fallow land with an area of 106.7 hectares was accounted for 33.1 per cent. Due to limited source of irrigation facility the total agricultural land could not be brought under plough. The land under rainfed farming is uncertain for cultivation as well as for agricultural returns, as a result, significant proportion of arable land is left out as fallow land in this village.

Irrigation:

Out of the total cultivated area of 93.1 hectares, the irrigated land accounted for 87.1 per cent and the unirrigated land accounted for 12.9 per cent. The total irrigation in this village is being supplemented by wells alone.

Cropping Pattern:

Altogether there are four crops that are grown in this village. They are paddy, turmeric, plantains and groundnut. Paddy is the principal staple crop cultivated in 39.6 hectares which accounted
Plate 11.3a An intensive cultivation of plantains under well irrigation at Mandapalli village.

Plate 11.3b Bullocks, the chief source of animal power used for agricultural operations like ploughing, pulling the carts, lifting the water etc.
for 42.5 per cent of the total cropped area of the village. Turmeric is the second important crop grown in 29.1 hectares and accounted for 23.5 per cent of the total cropped area. The third important crop grown in this village is plantain which accounted for 18.5 per cent of the total cropped area of the village.

Table 11.3b

Cropping Pattern of Mandapalli Village - 1988-89

<table>
<thead>
<tr>
<th>Crop</th>
<th>Area in hectares</th>
<th>Percentage to the total cropped area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>39.6</td>
<td>42.5</td>
</tr>
<tr>
<td>Groundnut</td>
<td></td>
<td>15.5</td>
</tr>
<tr>
<td>Turmeric</td>
<td>21.9</td>
<td>23.5</td>
</tr>
<tr>
<td>Plantains</td>
<td>17.2</td>
<td>18.5</td>
</tr>
<tr>
<td>Total</td>
<td>93.1</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Groundnut is the least important crop in terms of spatial spread but cultivated in 14.4 hectares of land which accounted for 15.5 per cent of the total cropped area. Except groundnut crop, the remaining crops are intensively cultivated in the small size land holdings with the help of well irrigation.

The cropping pattern of this village has revealed that
more or less an equal importance has been given to all the commercial crops along with the paddy as a subsistence crop. The spatial distribution of these crops under well irrigation has indicated that no single crop is found contiguously with large area as like in the case of crop distribution under canal and tank irrigation areas. The competition that exists among cash crops as well as intensive staple food crops has been resulted into diversified cropping pattern, which is a typical characteristic of crop farming under well irrigation. To confirm this, the same characteristic feature is found in this village by giving due importance to both cash and staple food crops under well irrigation. Groundnut is largely cultivated as a rainfed crop in the dry lands.

From the above discussion it is observed that the cropping pattern is highly superior and intensive but diversified. It is found that the competition between the commercial crops and foodgrain crops is high in occupying the agricultural land. It is due to the development of well irrigation and intensive cultivation of the crops as well as high input application. Regarding the landuse is concerned there is a significant proportion of land under fallows. This fallow land can be brought under cultivation regularly with the help of some reclamation measures and dry farming techniques. But the problems here are the low density of population, high man-land ratio, very poor literacy, lack of awareness about dryland farming and poor socio-economic conditions. The fallow lands and other wastelands can be effectively utilised for social forestry and fodder development in the village.
Concerted efforts should be taken to improve these lands for functional activities and to protect the land from soil erosion and land degradation.

V. Raghavapuram Village:

V. Raghavapuram village is situated in the lowest rainfall zone of north-western part of Cuddapah district. It is located 8 km. away from Muddanur mandal head quarter on Muddanur-Pulivendula road. With an area of 283.8 hectares and a total population of 252 persons, the density of population of the village is 89 persons per sq.km. About 37 per cent of the total population are literates in the village. Of the total working population of 109 persons, the agricultural population were 94 persons which accounted for 86.2 per cent to the total working population in the village. The agricultural population in the village consisted more number of cultivators accounted for 74.5 per cent of the total agricultural population. The agricultural labourers accounted for only 25.5 per cent. The low proportion of agricultural population of this village is very much contrasting to the other sample village. It is due to the rainfed cultivation of crops and very low degree of farming operations. And also the crops which are cultivated in this village are not labour-intensive crops.

The village V. Raghavapuram is situated on a comparatively upland undulating region. The topography of the land is highly undulating with moderate to steep slope conditions. The soils of this village are black and red and black mixed types. These soil types found
Table 11.4a

General Landuse of V. Raghavapuram Village - 1988-89

<table>
<thead>
<tr>
<th>Landuse</th>
<th>Area in hectares</th>
<th>Percentage to the total area of the village</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roads</td>
<td>2.1</td>
<td>0.7</td>
</tr>
<tr>
<td>Settlement</td>
<td>1.2</td>
<td>0.4</td>
</tr>
<tr>
<td>Water bodies</td>
<td>4.2</td>
<td>1.5</td>
</tr>
<tr>
<td>Wasteland</td>
<td>47.3</td>
<td>11.8</td>
</tr>
<tr>
<td>Fallow land</td>
<td>14.8</td>
<td>4.9</td>
</tr>
<tr>
<td>Cropped area</td>
<td>229.0</td>
<td>80.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>283.8</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
in this village are not so fertile on account of stony surfaces and considerable degree of soil erosion feature. The lands which are located especially in the peripheral areas are severely prone to soil erosion due to steep slope conditions as well as reckless use of these lands for agriculture and grazing. The lands located in the centre and eastern parts, northern and southern parts are comparatively good in terms of soil fertility and cultivation of crops. Here, the field size is comparatively larger than the field patterns in the other sample villages. The large size of the field in this village is an account of extensive cultivation of dry crops.

Landuse

As in the case of other sample agricultural villages, the land suitable for agriculture in V. Raghavapuram village is also spectacularly high and accounted for 85.6 per cent of the total geographical area of the village. Altogether the land under non-agricultural uses accounted for 14.6 per cent only.

Uncultivated Land:

The land under non-agricultural uses is amounted to 40.8 hectares. Under this category of landuse, the proportion of wasteland is quite significant with 33.3 hectares and accounted for 11.8 per cent of the total area of the village. This is followed by land under water bodies with 4.2 hectares, land under roads with 2.1 hectares and land under settlement with 1.2 hectares.
Arable Land:

Although there are several physical constraints like undulating terrain, moderate to steep slopiness, poor and rocky exposure soils and low rainfall conditions, a large part of the geographical area of this village is brought under plough which altogether accounted for 85.6 per cent. In 1988-89, the net area brought under cultivation was accounted for 60.7 per cent of the total area of the village. In view of several physical constraints, the total cultivated land is given to single cropping only. In this village, the amount of land which is to be brought under plough varies every year because of rainfed farming. The irrigation facilities are more or less competitively absent. The crop farming is by and large extensive type with the cultivation of dry crops. The success or failure of the cropping as well as the sowing or harvesting periods are mostly depending upon the arrival and success or failure of the southwest monsoon.

Cropping Pattern:

The cultivation of dry crops is predominant in this rain-shadow area due to absence of irrigation facilities. Kharif is the most important harvest in the village since this village gets more rainfall from southwest monsoon. Altogether there are four crops grown in this village. They are groundnut, jowar, redgram and vegetables. Except vegetable cultivation the rest of the crops grown as rainfed crops. Among these crops groundnut is the most important crop which
Plate 11.4a A view of the eroded marginal agricultural land in V. Raghavapuram village. The quality of this land is very poor due to rugged and stony surface.

Plate 11.4b Preserving of dry jowar stalk in the form hay stocks to provide dry fodder to the bovine population in V. Raghavapuram village.
Plate 11.5a  Type and pattern of Housing of Bayyanapalli settlement.

Plate 11.5b  Type and pattern of Housing of V.Raghavapuram settlement.
accounted for 78.2 per cent of the total cropped area of the village followed by jowar 11.7 per cent, redgram 8.4 per cent and vegetables 1.7 per cent. The present cropping pattern of this village has indicated the specialisation of crop farming with groundnut as the dominant crop. This spectacular spatial spread of groundnut cultivation is mainly due to its commercial value, suitability of the crop to the red and black mixed soils and short duration of the crop. Next to groundnut, jowar is the most preferable crop due to the presence of deep lack soils here and there in the low lying areas. Here, the competition for the arable land occupancy is between groundnut and jowar crops. When the monsoon is delayed and failure, jowar cultivation may be extended significantly or otherwise groundnut crop is the most suited crop. Redgram is largely cultivated as an interculture crop in groundnut and jowar fields. It is interesting to state that the important ecological parameter namely rainfall condition has been profoundly influencing the crop forming with the cultivation of two or three dry crops. But at the times of drought occurrence, this specialised rainfed farming may not be so appropriate, and alternatively it calls for diversification of crop farming and practices of dryland farming technology for sustainable crop production.

Table 11.4b
Cropping Pattern of V. Raghavapuram Village - 1988-89

<table>
<thead>
<tr>
<th>Crop</th>
<th>Area in hectares</th>
<th>Percentage to total cropped area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundnut</td>
<td>178.8</td>
<td>78.2</td>
</tr>
<tr>
<td>Redgram</td>
<td>19.3</td>
<td>8.4</td>
</tr>
<tr>
<td>Jowar</td>
<td>26.9</td>
<td>11.7</td>
</tr>
<tr>
<td>Vegetables</td>
<td>4.0</td>
<td>1.7</td>
</tr>
<tr>
<td>Total</td>
<td>229.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Conclusion:

A general survey of all the four sample villages has indicated that they have differed from one another in respect of site and situation, density of population, density of agricultural population, general landuse, land quality and cropping pattern. Mundlapalli village which is selected on the basis of canal irrigation is by far the largest of all the sample villages both in respect of area and population. The literacy rate is also high. The housing pattern is also different from the other three villages. Different types of houses are noticed with some order, street pattern in Mundlapalli village. Since it is located only 3 kms. away from Cuddapah urban centre, the urban impact on this agricultural settlement is found in all these socio-economic characteristics. The moderate density of population is found in Bayyanapalli village and the lowest in Mandapalli village. In Bayyanapalli and Mandapalli villages, the house types are of inferior type, very congested, irregular spacing of houses and street patterns. While V. Raghavapuram village is quite different from others with different types of houses but house-spacing and street patterns are irregular.

All these four selected sample villages are purely agricultural settlements which is evident from the fact that the agricultural population has accounted more than three-fourths of the total working population. Regarding the landuse pattern, the high proportion of land under plough is noticed in Mundlapalli village followed by V. Raghavapuram. The lowest proportion of land under
plough is noticed in Mandapalli village followed by Bayyanapalli. A significant proportion of wasteland is found in Mandapalli village followed by V. Raghavapuram. The lowest proportion of wasteland is recorded in Mundlapalli village. Considerable proportion of fallow land is observed in Mandapalli village followed by Bayyanapalli and V. Raghavapuram. All these landuse characteristics revealed that the land under cropping is highly certain in the canal irrigated village in contrast to other villages. In the case of Mandapalli and Bayyanapalli villages where the irrigation is being supplemented by wells and tanks in a limited spatial extent and sometimes fluctuating due to vagaries of the monsoon. Regarding to the quality of the land, the land in Mundlapalli village is of plain type and fertile with deep soil cover and absence of stony surfaces. In Mandapalli and Bayyanapalli villages also, the lands which are irrigated are of plain type with deep soils free from rocky exposures and highly productive. In V. Raghavapuram village except a limited portion, the rest of the lands are suffering from physical constraints like undulating terrain, low rainfall, thin soil cover high rate of soil erosion and stonyness of the fields.

The crop farming in all the sample villages has clearly indicated that there are conspicuous differences in the practices and production of farming from one to another. In the canal irrigated village of Mundlapalli and the tank irrigated village of Bayyanapalli, paddy is by far the single most largest crop. In these two villages the cultivation of other crops is negligible. But in the case of well irrigated village of Mandapalli, the cropping pattern is different. On
par with the paddy cultivation the equal preference has also been given to different cash crops like turmeric and plantains. Here the competition between the wet crops is large in the land occupancy. The farmers are also wise in cultivating the cash crops at intensive scale under well irrigation because the input expenditure is comparatively high in the cultivation of wet crops under well irrigation. It is also significant to state that the crop farming is comparatively diversified in the well irrigated village in contrasting to the areas of tank and canal irrigation. In Raghavapuram village, the cropping pattern is truly the consequence of the natural environment. Due to non-availability of irrigation facilities the crop farming is mainly rainfed by cultivating dry crops namely groundnut, jowar and grams. Here mixed cropping is the common practice of crop farming. But the striking characteristic of cropping pattern in V. Raghavapuram village is highly specialised rather than diversified farming.

From the above discussion it is inferred that the different sources of irrigation have been profoundly exercising their role on effective utilisation of land resources and determining the cropping patterns and crop productivity levels. In all aspects the canal irrigated village of Mundlapalli is significant in terms of agricultural development. In contrast to this, the low agricultural development is found in V. Raghavapuram. From this empirical investigation it is found that not only irrigation but also the awareness among the farmers in the new practices of cultivation especially in the dryland farming techniques and soil and water management methods is more required for overall development of the agriculture in the district.