

# **NATURE AND TRENDS OF CROPPING PATTERN IN ORISSA: A DISTRICT LEVEL ANALYSIS**

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## ABSTRACT

The objective of this paper is to study the nature and trends of cropping pattern in Orissa, a coastal state of India. For this purpose we have taken into account all thirteen districts of the state and 18 crops of the districts which cover more than 95percent of the gross cropped area of the district. The period of the study is from 1985 to 2000. We have calculated the area, yield and production of the crops and showed its trend in the aforesaid period.

**JEL Classification: N55, Q10**

**Key words: Cropping Pattern, Orissa Agriculture**

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**C**ropping pattern has been defined as, the proportion of area under different crops at a particular period/Point of time. A change in the cropping pattern means a change in the proportion of area under different crops.

**Factors affecting cropping pattern:** In any locality, the prevalent cropping system is the cumulative results of past and present decision by individuals, Communities or government and their agencies along with the natural factors. These decisions are usually based on experience, tradition, expected profit, personal preference and resources, social and political factor etc.

In this context, the *National commission on Agriculture* also pointed out that, “the cropping patterns depends primarily on soils and climatic factor, but as they evolve, also represent the integrated effect of the requirements, local habits and economic factors through time”. (*The National Commission on Agriculture, vol. IV, page 125-126*). Among the factors which affect, the cropping pattern must are (a) climate, Rainfall and irrigation facilities (b) price of crop and income level of farmer (c) Govt. Price policy (d) social factors (e) socio-economic conditions (f) Type of soils (f) size of the farms (g) Infrastructural factors and influence of technology.

Before analyzing the cropping pattern and growth levels in respect of area, production and yield of selected crops, it would be worthwhile to preface this study with some basic ideas about crops, their sowing and harvesting seasons in Orissa.

There are main two crop seasons in orissa e.g. khariff or the season of summer crops and Rabi or the season of winter crops. Therefore sowing in Orissa, in the Khariff season begins generally on the onset of Southwest monsoons in the mid-

June, while the Rabi season starts at the beginning of cold weather season, i.e. at the end of October or early November, when the Monsoon has receded. The food crops grown in Rabi season are: Paddy, Jowar, Bajra, Maize, Pigeon Pea, Green Gram, Black Gram, Groundnut and Sugarcane. These crops require high temperature and plentiful supply of water. The food crops of Rabi season are: Wheat, Lentils, Bengal Grams, Peas and potatoes. These crops require cold weather and moderate supply of water. The harvesting periods of Khariff crops starts at the end of Monsoon, i.e. September to October and the Rabi crops are generally harvested from March to April.

Since, this study is based on Selected crops, therefore, it would be rational to examine their relative position with respect to Area, Production and Yield. The crops selected are: Paddy, Wheat, Maize, Jawar, Ragi (cereals), Biri, Mung, Kulthi, Arhar, Gram (pulses), Til, Mustard, Groundnut (oil seeds), Onion, Potato, Sugarcane, Jute and Cotton (cash crops).

This study has been taken up with the following specific objectives:

- (a) To examine the nature and trends of cropping pattern in Orissa (district wise).
- (b) To examine if there exists any significant variation in cropping pattern over the periods across the districts.

## **SECTION 2**

### **AREA, PRODUCTION AND YIELD AT THE DISTRICT LEVEL:**

In order to study the changes in cropping pattern with respect to 18 major crops during the three periods i.e. 1985-1990, 1990-1995 and 1995-2000, we have taken into account all the undivided 13 districts of orissa.

#### **2.1 BALASORE:**

With a total area of 6,311 sq. km, the district of Balasore forms the part of coastal region in the eastern side of the state. As far the Infrastructuarl development index is concerned, the District ranks third in 2000-01(*as per Orissa state development Report, 2001*).

Table No.2.1

## Crop-Wise Area, Production And Yield In Balasore District –1985-86 To 1999-00

| PERIODS<br>CROPS | FIRST PERIOD |           |                   | SECOND PERIOD |           |                   | THIRD PERIOD |           |                   | ANNUAL COMPOUND GROWTH RATE(%) |        |        |        |        |        |        |        |        |
|------------------|--------------|-----------|-------------------|---------------|-----------|-------------------|--------------|-----------|-------------------|--------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
|                  | 85-90        |           |                   | 90-95         |           |                   | 95-00        |           |                   | 85-90                          |        |        | 90-95  |        |        | 95-00  |        |        |
| NAME OF CROPS    | % TO GCA     | Y(KGS/HA) | % TO TOTAL OUTPUT | % TO GCA      | Y(KGS/HA) | % TO TOTAL OUTPUT | % TO GCA     | Y(KGS/HA) | % TO TOTAL OUTPUT | AREA                           | YIELD  | OUTPUT | AREA   | YIELD  | OUTPUT | AREA   | YIELD  | OUTPUT |
| PADDY            | 61.52        | 1750.00   | 65.87             | 60.96         | 1969.40   | 66.79             | 74.52        | 1909.70   | 79.10             | 0.37                           | 10.94  | 11.35  | 0.97   | 11.09  | 12.17  | -0.33  | 1.88   | 1.55   |
| WHEAT            | 0.75         | 1885.80   | 1.27              | 0.46          | 1627.60   | 0.60              | 0.25         | 1461.80   | 0.30              | 2.54                           | -0.82  | 1.69   | -17.79 | 8.01   | -11.21 | 5.19   | 0.82   | 6.06   |
| MAIZE            | 0.23         | 1062.40   | 0.15              | 0.24          | 1178.60   | 0.15              | 0.19         | 1147.00   | 0.13              | 4.49                           | 4.91   | 9.62   | -1.16  | 5.29   | 4.06   | 0.53   | 1.38   | 1.92   |
| JAWAR            | 0.01         | 598.40    | 0.00              | 0.00          | 0.00      | 0.00              | 0.00         | 0.00      | 0.00              | 7.57                           | -17.81 | -11.60 | N.C    | N.C    | N.C    | N.C    | N.C    | N.C    |
| RAGI             | 0.00         | 0.00      | 0.00              | 0.00          | 0.00      | 0.00              | 0.00         | 0.00      | 0.00              | N.C                            | N.C    | N.C    | N.C    | N.C    | N.C    | N.C    | N.C    | N.C    |
| BIRI             | 5.53         | 567.20    | 6.23              | 6.13          | 569.40    | 6.33              | 4.15         | 421.80    | 3.32              | -0.20                          | 3.22   | 3.01   | -0.39  | -5.36  | -5.73  | 5.56   | -0.03  | 5.53   |
| MUNG             | 7.27         | 521.20    | 9.33              | 6.99          | 494.00    | 7.69              | 3.76         | 388.10    | 3.86              | 3.50                           | -4.99  | -1.67  | -2.04  | 3.04   | 0.94   | 1.63   | 13.26  | 15.11  |
| KULTHI           | 0.63         | 496.60    | 0.29              | 0.20          | 491.20    | 0.08              | 0.14         | 449.20    | 0.05              | 4.05                           | -0.69  | 3.33   | -6.97  | -0.26  | -7.22  | 2.32   | 2.09   | 4.45   |
| ARHAR            | 0.14         | 546.00    | 0.17              | 0.16          | 700.20    | 0.22              | 0.07         | 682.10    | 0.10              | -2.68                          | 6.28   | 3.44   | -4.77  | 5.92   | 0.86   | 11.21  | 2.68   | 14.19  |
| GRAM             | 0.14         | 563.80    | 0.15              | 0.07          | 388.20    | 0.06              | 0.10         | 309.40    | 0.06              | 6.00                           | -1.77  | 4.12   | 204.15 | -0.02  | 4.08   | -7.15  | 13.12  | 5.04   |
| TIL              | 1.23         | 508.80    | 1.26              | 1.00          | 465.00    | 0.83              | 0.48         | 442.70    | 0.42              | -0.23                          | -1.87  | -2.09  | -9.98  | 10.23  | -0.77  | 10.51  | 3.77   | 14.68  |
| MUSTARD          | 1.99         | 548.40    | 2.38              | 2.46          | 610.00    | 3.03              | 1.44         | 363.30    | 1.09              | 10.92                          | 5.22   | 16.71  | -8.76  | -11.38 | -19.14 | -11.48 | -17.78 | -27.22 |
| GROUNDNUT        | 1.84         | 1583.40   | 5.30              | 2.00          | 1739.00   | 5.79              | 1.40         | 1377.50   | 3.21              | -10.34                         | 2.50   | -8.10  | -16.25 | -5.19  | -20.59 | 1.32   | -1.85  | -0.55  |
| ONION            | 0.60         | 5401.00   | 2.59              | 0.65          | 8137.80   | 3.87              | 0.76         | 6782.40   | 3.77              | 2.97                           | -6.70  | -3.93  | 2.40   | 12.13  | 14.82  | -1.41  | -3.66  | -5.02  |
| POTATO           | 0.04         | 8881.60   | 0.19              | 0.05          | 10502.60  | 0.22              | 0.06         | 12064.10  | 0.31              | -0.51                          | 2.51   | 1.99   | -5.11  | 3.33   | -1.95  | 9.44   | -5.53  | 3.39   |
| SUGARCANE        | 0.31         | 6464.20   | 2.90              | 0.29          | 7024.20   | 2.64              | 0.36         | 6753.10   | 3.34              | 11.11                          | -1.01  | 9.98   | -7.31  | 2.57   | -4.93  | -30.74 | -6.03  | -34.91 |
| JUTE             | 0.98         | 1620.00   | 1.92              | 0.78          | 1971.00   | 1.69              | 0.69         | 1179.22   | 0.92              | -4.75                          | 0.00   | -4.75  | -4.68  | 3.94   | -0.93  | -12.57 | -16.65 | -27.13 |
| COTTON           | 0.00         | 34.00     | 0.00              | 0.00          | 0.00      | 0.00              | 0.00         | 0.00      | 0.00              | -4.75                          | 0.00   | -4.75  | -4.68  | 3.94   | -0.93  | -12.57 | -16.65 | -27.13 |

Source:calculated from Orissa agricultural statistics, Various issues. N.B. n.c for no crops

The 18 major crops covered 83.22% of GCA in the first period whereas in the last period, it covered 88.37% of GCA. From the Table 2.1, it is evident that, Paddy is the principal crop of the District followed by Biri and mung in all the periods. The average percentage of GCA under paddy in First period was 61.52%, which increased to 74.52% in the last period. The average yield level of paddy in first period was 1750 kgs/ha, which increased to 1964.4 kgs/ha in the second period. In the final period, the yield level was higher than 1<sup>st</sup> period by 159.7 kgs/ha but lower than second period by 59.7 kgs/ha Thus, in general the yield level of paddy was found to be higher in second period. Wheat covered only 0.75% of GCA in First period, which came down to 0.25 % in the final period. The yield level of wheat during final period has gone down significantly to 1461.8 kgs/ha, which was less by 424 kgs/ha and 165.8 kgs/ha in comparison to 1<sup>st</sup> and second period respectively. Maize is one kind of coarse cereal very scatterdly cultivated in orissa. The average percentage of GCA under maize during first period was 0.23 %, which increased to 0.24 % in the second period and came down to 0.19 % of GCA in the last period. The yield level in the first period was 1062 kgs/ha, which increased to 1178.6 kgs/ha in the second period but came down marginally to 1147.00 kgs/ha in the final period.

Biri is one of the important crops in the District. During first period, 5.53 % of GCA was under Biri, whereas the Share in the second and third period was 6.13 % and 4.15 % respectively. Thus unlike Paddy the share increased in the second period by 0.6 %, which came down by 1.38 % in the final period in comparison to first period. As far yield level of Biri is concerned it was 567.2 kgs/ha in the first period and increased marginally to 569.5 kgs/ha in the second period. But in the third period it came down to 421.8 kgs/ha. Mung is another important pulses in the district. 7.27 % of GCA was under the crop in first period, which came down to 6.99 % and 3.76 % in the second and third period respectively. As far yield level is concerned, it was very high in the 1<sup>st</sup> period (521 kgs/ha), which came down to 494 kgs/ha and 388.1 kgs/ha in the second and third period respectively. Area under kulthi in the first period was 0.63 %, which came down to 0.20 % and 0.14 % in the second and third period respectively. The yield level of Kulthi, which was 496.6 kgs/ha, declined to 491.2 kgs/ha in the second and third period respectively.

Arhar amounts less than 1 % of GCA in the District. In the 1<sup>st</sup> period, 0.14 % of GCA was under Arhar whereas in the 2<sup>nd</sup> and 3<sup>rd</sup> period the respective figures stands as 0.16 % and 0.07 % .The yield level of Arhar which was 546 kgs/ha in the 1<sup>st</sup> period increased to 700.2 kgs/ha in the 2<sup>nd</sup> period which again came down to 682.1 kgs/ha in the final period.

Til is one of the important oil seeds which amounts to 1.23 % of GCA during the 1<sup>st</sup> period in the district. But, for the second and third periods, the respective figures are 1 % and 0.48 %. Thus it is declining over the periods. The yield level of Til which was 508.8 kgs/ha in the 1<sup>st</sup> period came down to 465 kgs/ha in the second period and in the third period the yield level is the lowest that is, 442.7 kgs/ha. Mustard is another important cash crop of the district. In the 1<sup>st</sup> period the district had devoted 1.99 % of GCA for the crop, which has increased to 2.46 % in the second period. But, in the 3<sup>rd</sup> period it came down to 1.44 %. As far as yield level is concerned, it was 548.4 kgs/ha in the 1<sup>st</sup> period, which increased to 610 kgs/ha in the second period but it, again came down to 363.3 kgs/ha in the 3<sup>rd</sup> period.

Groundnut is one of the important oil seeds in Orissa. In the 1<sup>st</sup> period 1.84 % of GCA was under the crop, which increased to 2 % in the second period and came down to 1.4 % in the 3<sup>rd</sup> period. Its yield level was very high in comparison to many other crops. In the first period it was 1583.4 kgs/ha, which increased to 1739 kgs/ha in the second period. But in the 3<sup>rd</sup> period it has come down by 361.5 kgs/ha that is to 1377.5 kgs/ha.

Onion is another cash crop of Orissa. In Balasore district, during 1<sup>st</sup> period 0.60 % of GCA was under the crop, which increased to 0.65 % in the 2<sup>nd</sup> period and 0.76 % in the 3<sup>rd</sup> period. As far as yield level is concerned it was 5401 kgs/ha in the 1<sup>st</sup> period, which increased to 8137.8 kgs/ha in the second period. Though area devoted to onion is high in the 3<sup>rd</sup> period yet its yield level has come down to 6782.4 kgs/ha. Potato is one of the important food items of Orissa. In the 1<sup>st</sup> period 0.04 % of GCA was under the crop, which increased to 0.05 % and 0.06 % of GCA in the second and third period respectively. In case of yield, it was 8881.6 kgs/ha in

the 1<sup>st</sup> period, which increased to 10,502 kgs/ha in the second period, and it is 12,064.1 kgs/ha in the final period. Thus one can find a positive relationship between areas devoted and yield level in case of potato.

Sugarcane or Gur accounts for 0.31 % of GCA of the districts in the 1<sup>st</sup> period, which came down to 0.29 % in the final period. The yield level of Sugarcane, which was 6464.2 kgs/ha in the 1st period, increased to 7024.2 kgs/ha in the second period in spite a fall in the percentage area devoted to this crop. In the 3<sup>rd</sup> period though area has increased under the crop but yield level has gone down to 6753.1 kgs/ha.

The percentage share of area under Jute in the 1<sup>st</sup> period was 0.98 % GCA, which came down to 0.78 % in second period and again, has fallen in third period to 0.69 %. The yield level of Jute, which was 1620 kgs/ha in the 1st period, has gone up to 1971 kgs/ha in the second period despite a fall in area by 0.20 %. During the final period the yield level was the lowest which was 1179.9 kgs/ha with a fall in area by 0.09 % in comparison to second period.

#### OBSERVATIONS

- (1) Paddy is the principal crop of the district as far area and contribution to total output is concerned. Pulses are second in the list followed by oil-seeds and cash crops. This is same over all the periods.
- (2) In comparison to first period, percentage area has gone down for Paddy, Wheat, Mung, Kulthi, Gram, Til, Mustard, Groundnut and Jute in the second period.
- (3) And in comparison to second period, percentage area has gone down for Wheat, Maize, Biri, Mung, Kulthi, Arhar, Til, Mustard, Groundnut and Jute in the third period.

- (4)Over all the periods, there is secular decline in area of Wheat, mung, Kulthi, Til and Jute.
- (5)In comparison to first period, there is a decline in yield of Wheat, mung, Kulthi, Gram and Til in the second period.
- (6)In comparison to second period, in the third period, yield level of all crops has gone down except potato.
- (7)Over all the periods, there is a secular decline in yield levels of Wheat, mung, Kulthi, Gram and Til

## **2.2 BOLANGIR**

With a total area of 8,913 sq kms, Bolangir district forms the part of western Orissa. As far as the Agricultural infrastructural development index is concerned, the district ranks 6<sup>th</sup> in both the period i.e. 1990-91 and 2000-01. The 18 major crops covered 84.36% of GCA in the first period, which increased to 85.06% and 86.77% in the 2<sup>nd</sup> and 3<sup>rd</sup> period respectively.

**Table No: 2.2**  
**Crop-Wise Area, Production And Yield In Bolangir District—1985-86 To 1999-00**

| PERIODS<br>CROPS | FIRST PERIOD |                |                   | SECOND PERIOD |                |                   | THIRD PERIOD |                |                   | ANNUAL COMPOUND GROWTH RATE |       |        |           |       |        |         |        |        |
|------------------|--------------|----------------|-------------------|---------------|----------------|-------------------|--------------|----------------|-------------------|-----------------------------|-------|--------|-----------|-------|--------|---------|--------|--------|
|                  | 1985-1990    |                |                   | 1990-1995     |                |                   | 1995-00      |                |                   | 1985-1990                   |       |        | 1990-1995 |       |        | 1995-00 |        |        |
| NAME OF CROPS    | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA      | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | AREA                        | YIELD | OUTPUT | AREA      | YIELD | OUTPUT | AREA    | YIELD  | OUTPUT |
| PADDY            | 48.85        | 1786.00        | 53.83             | 49.40         | 2116.20        | 56.70             | 53.87        | 2061.10        | 62.06             | 0.21                        | 5.54  | 5.77   | 0.14      | 0.34  | 0.48   | 0.13    | 10.26  | 10.41  |
| WHEAT            | 1.14         | 1364.80        | 1.41              | 0.69          | 1520.40        | 0.83              | 0.50         | 1243.00        | 0.52              | -6.17                       | 0.85  | -5.38  | -6.90     | 1.63  | -5.38  | 4.87    | 2.34   | 7.32   |
| MAIZE            | 0.57         | 911.20         | 0.32              | 0.55          | 787.80         | 0.23              | 0.59         | 792.50         | 0.26              | 0.34                        | -0.12 | 0.23   | -1.76     | 0.63  | -1.15  | -0.05   | 3.56   | 3.51   |
| JAWAR            | 0.16         | 747.60         | 0.06              | 0.13          | 740.20         | 0.05              | 0.15         | 305.00         | 0.02              | -1.25                       | 0.27  | -0.99  | -7.26     | -3.36 | -10.37 | 2.21    | -1.58  | 0.59   |
| RAGI             | 1.46         | 650.77         | 0.59              | 1.00          | 675.80         | 0.35              | 0.64         | 364.30         | 0.13              | -6.37                       | -0.05 | -6.41  | -6.90     | -4.87 | -11.43 | 24.65   | 12.49  | 40.22  |
| BIRI             | 5.23         | 378.80         | 3.96              | 4.76          | 435.80         | 3.69              | 4.26         | 378.00         | 2.98              | -1.32                       | -0.01 | -1.33  | 0.79      | 1.26  | 2.06   | 2.01    | 8.52   | 10.70  |
| MUNG             | 7.06         | 418.00         | 7.31              | 7.59          | 482.60         | 8.07              | 7.92         | 367.10         | 6.72              | 1.22                        | 0.97  | 2.20   | 5.79      | 4.26  | 10.30  | 7.90    | 7.75   | 16.26  |
| KULTHI           | 4.49         | 366.60         | 1.53              | 4.51          | 370.40         | 1.38              | 4.66         | 310.70         | 1.22              | 3.29                        | -0.67 | 2.60   | -0.11     | -3.01 | -3.12  | 1.70    | 12.11  | 14.01  |
| ARHAR            | 1.73         | 663.60         | 2.53              | 1.99          | 671.20         | 2.60              | 2.27         | 471.10         | 2.14              | 8.48                        | 0.57  | 9.09   | 1.23      | -2.14 | -0.94  | 1.77    | 7.74   | 9.65   |
| GRAM             | 1.22         | 449.40         | 1.03              | 0.72          | 393.00         | 0.50              | 0.34         | 368.30         | 0.21              | 4.74                        | -1.22 | 3.46   | -19.67    | -7.75 | -25.90 | 11.40   | 8.81   | 21.21  |
| TIL              | 5.43         | 527.60         | 5.86              | 6.23          | 458.60         | 5.11              | 5.16         | 370.90         | 3.60              | 5.09                        | 1.39  | 6.55   | -0.29     | 1.31  | 1.02   | 1.55    | 3.26   | 4.86   |
| MUSTARD          | 1.39         | 420.80         | 1.28              | 1.86          | 462.40         | 1.66              | 1.31         | 388.80         | 1.06              | 13.83                       | 0.23  | 14.09  | 0.75      | 1.08  | 1.84   | -16.11  | -13.38 | -27.33 |
| GROUNDNUT        | 3.61         | 863.60         | 5.67              | 3.74          | 1137.00        | 6.74              | 2.81         | 1254.40        | 5.85              | 16.61                       | -2.68 | 13.49  | -10.18    | 3.86  | -6.71  | -1.07   | 3.67   | 2.55   |
| ONION            | 1.19         | 7698.00        | 7.43              | 0.97          | 7751.20        | 5.34              | 0.86         | 7660.40        | 4.75              | -0.48                       | -0.14 | -0.62  | -3.57     | 0.76  | -2.84  | -3.28   | 6.31   | 2.83   |
| POTATO           | 0.02         | 6727.00        | 0.06              | 0.02          | 7681.20        | 0.07              | 0.02         | 8257.50        | 0.05              | -8.76                       | 3.68  | -5.40  | 6.74      | -7.49 | -1.26  | -9.25   | 3.77   | -5.83  |
| SUGARCANE        | 0.71         | 6871.40        | 7.11              | 0.79          | 6557.00        | 6.65              | 0.94         | 6587.13        | 8.11              | 5.43                        | 2.96  | 8.55   | 2.86      | -3.88 | -1.13  | -8.45   | 5.98   | -2.97  |
| JUTE             | 0.00         | 0.00           | 0.00              | 0.00          | 0.00           | 0.00              | 0.00         | 0.00           | 0.00              | N.C                         | N.C   | N.C    | N.C       | N.C   | N.C    | N.C     | N.C    | N.C    |
| COTTON           | 0.10         | 113.22         | 0.03              | 0.09          | 137.02         | 0.03              | 0.49         | 197.20         | 0.30              | N.C                         | N.C   | N.C    | -         | -     | -      | -       | -      | -      |

Source: As in Table no 3.1

From the Table 2.2, it is evident that, paddy is the principal crop of the districts as 48.85% of GCA was under the crop in the first period which increased to 49.40% and 53.87% in the second and third period respectively. Thus, there is 5% increase in the GCA in the last period in comparison to first period. The yield level of paddy is also very high in the district (i.e. higher than the state average in all periods). In the first period, the yield level of paddy, which was 1786.00 kgs/ha, increased to 2116.20 kgs/ha in the second period. But in the third period, it has gone down marginally to 2061.10 kgs/ha. In first period the percentage of GCA under wheat, which was 1.14%, came down to 0.69% and 0.50% during 2<sup>nd</sup> and 3<sup>rd</sup> period respectively. The yield level of wheat in the first period was 1364.80 kgs/ha, which increased to 1520.4 kgs/ha in the second period but came down to 1293 kgs/ha in the third period. But, in all period it is less than the state average. Maize is one of the coarse cereals of the districts. In first period 0.57% of GCA was under the crop, which increased to 0.59% of GCA in the final period. But, the yield level of the Maize, which was 911.20 kgs/ha in the first period, came down to 792.5 kgs/ha despite increased percentage of GCA in the last period. In all the period, the percentage area under the crop as well as the yield level is less than the state average. In case of Jawar 0.16% of the GCA was under the crop in the first period, which came down by 0.01% in the final period, likewise, the yield which was 797.50 kgs/ha (i.e. higher than state average) came down to 305 kgs/ha in the final period. Similar is the case of Ragi where percentage area and yield level has gone down in the final period in comparison to second period.

Biri is one of the important pulses of the district. In the first period 5.23% of GCA was under the crop, which has fallen to 4.76% and 4.26% in the second and third period respectively. The yield level of Biri, which was 378.8 kgs/ha, has increased to 435.8 kgs/ha in the second period, came down to 378 kgs/ha in the final period. The percentage area and yield level was less than the state average in all the periods. In case of mung, the percentage of GCA in the first period was 7.06%, which increased to 7.59% and 7.92% in the second and third period respectively. But, the yield level during the third period (367.10 kgs/ha) was less than the yield in the first period. The area under Kulthi in the first period was 4.49% which has marginally increased to 4.66% in the third period but the yield level during the third period (310 kgs/ha) has fallen in comparison to first period

(366.6 kgs/ha). Though in the district, the percentage area under the crop was higher than the state average in all periods, but yield level was less than the state average. In case of Arhar, although the percentage area under the crop in the final period was higher than first period, yet the yield level was less in final period (471.10 kgs/ha) in comparison to first period. In case of Gram, the percentage area under the crop as well as yield level during third period (0.34%, 368.30 kgs/ha) was less than first period (1.22%, 449.4 kgs/ha). The percentage area as well as yield level of the crop in the third period was less than the state average.

Til is one of the important oilseeds of the district. The percentage area under the crop in first period was 5.43%, which came down by 0.27% during the final period to 5.16%. Similarly, the yield level, which was 527.6 kgs/ha in the first period, has come down to 370.9 kgs/ha in the final period. The percentage area under the crop in all periods was higher than the state average. Except, the yield level of third period, in other periods, the yield was higher than the state average. Mustard accounted for 1.39% of GCA in the first period, which has increased to 1.86% in the second period but has gone down by 0.55% in final period in Comparison to second period. Similarly, the yield level, which was 420.8 kgs/ha in the first period, has gone down to 388.8 kgs/ha in the third period. The percentage area under Groundnut as well as yield level in first and third period is less than the state average. The percentage area under the crop in the first period was 3.61%, which has gone down to 2.81% in the final period, but the yield level, which was 863.00 kgs/ha in the first period, has increased to 1254.4 kgs/ha in the third period. Onion accounted for 1.19% of GCA in the first period, which has gone down to 0.86% in the third period. Similarly, the yield level, which was 7698 kgs/ha in the first period, has gone down to 7660.4 kgs/ha in the third period. The percentage area as well as yield level is less than the state average. Potato, sugarcane and cotton together accounted for less than 1% of GCA (i.e. 0.83%) in the first period, which increased to 1.45% in the last period. In the last period, except potato, the yield level of sugarcane and cotton was higher than the state average.

#### OBSERVATIONS

- (1) Paddy is the principal crop of the district followed by mung, Biri, Kulthi and Oil seeds (On the basis of % area contributed) in all the periods.

- (2) In comparison to first period, percentage area has gone down for Wheat, Jawar, Ragi, Biri, Groundnut, Onion and Cotton in the second period. And in the 3<sup>rd</sup> period, % Area has gone down for Wheat, Ragi, Biri, Groundnut, Mustard, Groundnut, Onion and Potato, in comparison to 2<sup>nd</sup> period. And there was a secular decline in the % share of GCA of Wheat, Ragi, Biri, Groundnut and Onion.
- (3) In case of yield level in second period, yield of Maize, Jawar, Gram, Til, and Sugarcane was less than the first period and except the yield of Maize, Groundnut, potato and Sugarcane, the yield level of all other crop during third period was less than second period.
- (4) The yield level of Jawar, Gram & Til is declining over all the period.
- (5) During the first period, the following crops percentage share of GCA was less than the state average: Wheat, Maize, Jawar, Ragi, Biri, Mung, Mustard, Potato and Jute. In the final period, it is in case of Maize, Jawar, Ragi, Biri, Gram, Mustard, Groundnut, Potato and Jute. Thus, more than 50% crops share in GCA is less than state average.
- (6) In case of yield, except, Paddy, Jawar, Ragi, Til and Sugarcane, yield of all other crops during the first period was less than state average. In the final period, except Paddy, Mustard, Groundnut, Onion, and Sugarcane, the yield level of all other crops is less than the state average.

## 2.3 CUTTACK

With a total area of 11,142 sq.kms, the district of Cuttack forms the part of coastal region in the eastern side of the state. As per the *Orissa development report*, the infrastructure development index of the district is very high and ranks second in 1990-91 and 2000-01. Average size of land holding in the district was 1.05 ha in 1990. The 18 major crops covered 84.14% of GCA in first period, which increased to 87.71% in the final period.

**TABLE NO: 2.3**  
**CROP-WISE AREA, PRODUCTION AND YIELD IN CUTTACK DISTRICT—1985-86 TO 1999-00**

| PERIODS<br>CROPS | FIRST PERIOD |                |                   | SECOND PERIOD |                |                   | THIRD PERIOD |                |                   | ANNUAL COMPOUND GROWTH RATE(%) |       |        |        |       |        |        |        |        |
|------------------|--------------|----------------|-------------------|---------------|----------------|-------------------|--------------|----------------|-------------------|--------------------------------|-------|--------|--------|-------|--------|--------|--------|--------|
|                  | 85-90        |                |                   | 90-95         |                |                   | 95-00        |                |                   | 85-90                          |       |        | 90-95  |       |        | 95-00  |        |        |
|                  | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA      | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | AREA                           | YIELD | OUTPUT | AREA   | YIELD | OUTPUT | AREA   | YIELD  | OUTPUT |
| PADDY            | 44.98        | 1979.00        | 46.05             | 46.73         | 2061.40        | 47.38             | 54.05        | 1729.80        | 53.82             | 0.63                           | 9.87  | 10.57  | -1.66  | 5.04  | 3.30   | 0.46   | -14.33 | -13.94 |
| WHEAT            | 0.40         | 1937.30        | 0.59              | 0.22          | 1950.20        | 0.32              | 0.16         | 1493.55        | 0.19              | -8.28                          | 2.76  | -5.74  | -23.99 | -3.39 | -26.57 | 19.53  | -5.40  | 13.07  |
| MAIZE            | 0.30         | 1086.40        | 0.16              | 0.34          | 1196.00        | 0.19              | 0.37         | 1230.20        | 0.26              | 15.59                          | 8.92  | 25.90  | -4.16  | 5.04  | 0.67   | -5.58  | -2.78  | -8.20  |
| JAWAR            | 0.06         | 727.60         | 0.02              | 0.04          | 767.60         | 0.01              | 0.03         | 261.40         | 0.00              | -2.47                          | 4.06  | 1.49   | -29.89 | -2.57 | -31.69 | -3.60  | -5.49  | -8.89  |
| RAGI             | 0.80         | 736.70         | 0.28              | 0.44          | 914.40         | 0.19              | 0.20         | 825.00         | 0.00              | -7.42                          | 3.19  | -4.46  | -18.99 | -2.63 | -21.12 | -26.55 | -5.38  | -30.50 |
| BIRI             | 10.42        | 625.00         | 10.95             | 10.26         | 603.00         | 9.88              | 9.86         | 464.80         | 8.71              | -0.43                          | 0.68  | 0.25   | 1.87   | -3.25 | -1.44  | -3.91  | -2.56  | -6.37  |
| MUNG             | 10.38        | 536.00         | 11.56             | 9.72          | 472.60         | 9.07              | 8.13         | 411.40         | 7.75              | 2.80                           | 1.07  | 3.89   | 2.23   | 1.16  | 3.41   | -12.13 | 3.49   | -9.07  |
| KULTHI           | 4.43         | 558.60         | 1.92              | 3.30          | 622.60         | 1.53              | 3.04         | 481.90         | 1.28              | -0.09                          | 7.15  | 7.05   | 0.69   | -1.66 | -0.98  | -2.71  | -1.00  | -3.68  |
| ARHAR            | 0.50         | 717.20         | 0.67              | 0.57          | 803.60         | 0.80              | 0.40         | 740.25         | 0.63              | 14.61                          | 2.99  | 18.04  | -7.88  | -0.28 | -8.13  | -8.59  | -1.29  | -9.76  |
| GRAM             | 0.10         | 696.40         | 0.11              | 0.08          | 577.80         | 0.07              | 0.08         | 570.40         | 0.08              | -3.69                          | -1.77 | -5.40  | -2.38  | -3.79 | -6.08  | -1.00  | -7.23  | -8.15  |
| TIL              | 1.14         | 492.80         | 0.95              | 1.10          | 465.00         | 0.83              | 0.88         | 421.35         | 0.70              | 3.22                           | -0.98 | 2.21   | 3.19   | -0.05 | 3.14   | -14.95 | 3.41   | -12.05 |
| MUSTARD          | 1.09         | 503.00         | 1.00              | 1.46          | 488.60         | 1.23              | 1.32         | 385.60         | 1.04              | -1.69                          | -3.05 | -4.69  | 4.77   | -5.72 | -1.23  | -8.75  | 1.38   | -7.50  |
| GROUNDNUT        | 6.56         | 1508.00        | 16.28             | 7.95          | 1664.00        | 19.17             | 6.66         | 1211.45        | 13.75             | -21.13                         | -7.51 | -27.06 | 0.39   | 0.69  | 1.08   | -10.96 | 2.19   | -9.01  |
| ONION            | 0.32         | 7431.00        | 1.62              | 0.35          | 7326.20        | 1.65              | 0.42         | 6708.65        | 2.11              | 1.63                           | -0.99 | 0.62   | 2.21   | -0.11 | 2.09   | 4.57   | -1.77  | 2.73   |
| POTATO           | 0.30         | 11662.40       | 1.41              | 0.30          | 12964.20       | 1.47              | 0.30         | 13387.65       | 1.81              | 7.22                           | 5.04  | 12.63  | 1.18   | 3.97  | 5.20   | -4.60  | -0.25  | -4.83  |
| SUGARCANE        | 0.37         | 6907.00        | 3.11              | 0.41          | 6754.90        | 3.18              | 0.71         | 6148.87        | 6.11              | 3.34                           | 2.85  | 6.28   | 3.23   | -2.24 | 0.92   | -12.58 | -7.46  | -19.10 |
| JUTE             | 1.98         | 1656.00        | 3.30              | 1.53          | 2026.08        | 3.03              | 1.09         | 1373.05        | 1.75              | -11.41                         | 4.31  | -7.59  | -19.75 | -7.87 | -26.07 | -17.33 | -8.12  | -24.04 |
| COTTON           | 0.00         | 126.82         | 0.00              | 0.00          | 0.00           | 0.00              | 0.00         | 0.00           | 0.00              | -11.41                         | 4.31  | -7.59  | -19.75 | -7.87 | -26.07 | -17.33 | -8.12  | -24.04 |

Source: As in Table no 3.1

From the Table 2.3, it is evident that Paddy is the principal crop of the district through out all periods followed by Biri, Mung, Groundnut and Kulthi. The average percentage of gross cropped area under Paddy in the first period was 44.98%, which has increased to 54.08% in the last quinquennial. But, the yield of Paddy, which was 1979 kgs/ha in the first period, has come down to 1729 kgs/ha in the last period. Among Cereals, after Paddy, Ragi occupies the second place in first and second period whose share of area was 0.80% and 0.44% respectively and yield level was 736.7 kgs/ha and 914.40 kgs/ha. In the final period, percentage area has come down to 0.20% and the yield level to 825 kgs/ha. During final period, maize has more coverage after Paddy among Cereals. It accounted for 0.37% of GCA and yield level was 1,230 kgs/ha. The percentage area under Maize is increasing over the period. Wheat ranks three among Cereals as far area is concerned in all periods. But, over the periods, the yield level of Wheat as well as share of area is declining. Jawar accounted for lowest percentage of area in all the periods among Cereals and its share over the periods is declining.

Among pulses, Biri accounts for highest percentage share of Area in all the periods. During first period the area and yield was 10.42% and 625.00 kgs/ha respectively which has come down to 9.86% and 764.80 kgs/ha in the third period. Mung is the second important pulses whose area share was 10.38% in the first period, which has declined to 8.13% in the second period. Similarly the yield level, which was 536 kgs/ha in the first period has, come down to 411.4 kgs/ha in the final period. Similarly the percentage share of area and yield level of Kulthi also declined in the third period in comparison to first period. In the first period the share of area and yield level was 4.43% and 558 kgs/ha, which has come down to 3.04% and 481.9 kgs/ha in the final period. Arhar and gram together accounts less than 1% of GCA in all the periods. The share of area of both pulses has gone down in third period in comparison to first period.

Among oilseeds, Groundnut is the most important one as it enjoys largest % of GCA in all periods. In first period, it accounted 6.56% of GCA with yield level 1,508 kgs/ha. In the final period though its area share has gone up

marginally by 0.10%, its yield level has gone down significantly by 297 kgs/ha. The area share of mustard has gone up in third period to 1.32% as against 1.09% in the first period but its yield level has gone down to 385 kgs/ha as against 503 kgs/ha in the first period. Sugarcane is one of the important cash crops of the district. Its area share has gone up (0.71%) and yield level has gone down (6148.87 kgs/ha) in third period with comparison to first period where the respective figure share are 0.37% and 6907 kgs/ha. Jute is the most important cash crop, yet its area share and yield level has gone down in third period (1.09%, 1373 kgs/ha) in comparison to first period where the respective figures are 1.98% and 1656 kgs/ha. Unlike Jute, in case of Potato, though its area share was constant, yield level was increasing. In case of onion though the share of area was increasing but its yield level was going down.

#### OBSERVATIONS

- (1) Paddy is the single most important crop of the districts as explained by percentage of GCA under Paddy and contribution to total output followed by Biri, Mung, Kulthi and Groundnut in all periods.
- (2) In comparison to first period % share of Area has gone down for all except Maize Arhar, Mustard, Groundnut, Onion, Potato and Sugarcane in second period. Similarly in third period except Paddy, Maize, Onion, Potato and Sugarcane, % share area of all other crops has gone down in comparison to second period. As far yield level is concerned, yield of Biri Mung, Gram, Til, Mustard, Onion and Sugarcane has gone down in second period in comparison to first period. Likewise in third period, yield of all crops except Maize and Potato has gone down in comparison to second period. In all the periods there is a secular decline in share of Area of Wheat, Jawar, Ragi, Biri, Mung, Kulthi, Til and Jute and as far yield is concerned, it is in case of Biri, mung, Til, Mustard, Onion and Sugarcane.
- (3) In the first period, share of area less than the state average was in case of majority of crops except Biri, Mung, Groundnut, Sugarcane and Jute.
- (4) In case of yield, Arhar and Til's yield level was less than the state average. In the final period, except, Paddy, Biri, mung, Groundnut, Potato and Sugarcane, the % share area of all other crops were less than the stage average. And the

yield of Paddy, Jawar, Mustard, Groundnut and Sugarcane was less than the state average.

## **2.4 DHENKANALA**

With a total area of 10,827 sq.km, the district of Dhenkanala forms the part of Central region of the state. As per *Orissa developmental report (2001)*, in infrastructural development index, the rank of the district was 10 in 1990-91 which improved to 8 in 2000-01. The average size of land holding was 1.85 ha in 1985, which came down to 1.22 ha in 1990. The 18 major crops covered 83.49% of GCA in the first period, which has increased to 83.55% in the second period. In the third period, these 18 crops covered 87.15% of GCA.

Table No-2.4

## Crop-Wise Area, Production And Yield In Dhenkanala District—1985-86 To 1999-00

| PERIODS<br>CROPS | FIRST PERIOD |                |                   | SECOND PERIOD |                |                   | THIRD PERIOD |                |                   | ANNUAL COMPOUND GROWTH RATE |       |        |        |       |        |       |        |        |
|------------------|--------------|----------------|-------------------|---------------|----------------|-------------------|--------------|----------------|-------------------|-----------------------------|-------|--------|--------|-------|--------|-------|--------|--------|
|                  | 85-90        |                |                   | 90-95         |                |                   | 95-00        |                |                   | 85-90                       |       |        | 90-95  |       |        | 95-00 |        |        |
| NAME OF CROPS    | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA      | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | AREA                        | YIELD | OUTPUT | AREA   | YIELD | OUTPUT | AREA  | YIELD  | OUTPUT |
| PADDY            | 37.27        | 1622.40        | 33.41             | 35.22         | 1960.00        | 36.50             | 39.40        | 1682.70        | 43.52             | -1.40                       | 6.22  | 4.73   | -0.07  | 5.42  | 5.35   | 1.23  | 6.73   | 8.04   |
| WHEAT            | 0.40         | 1916.40        | 0.62              | 0.27          | 1893.80        | 0.40              | 0.23         | 1379.40        | 0.31              | -3.94                       | -0.33 | -4.26  | -12.03 | -5.01 | -16.44 | 5.09  | 0.27   | 5.37   |
| MAIZE            | 1.37         | 1000.60        | 0.74              | 1.25          | 1041.00        | 0.68              | 1.25         | 726.30         | 0.59              | -12.46                      | -0.59 | -12.97 | 1.12   | -4.12 | -3.05  | 0.51  | 10.90  | 11.47  |
| JAWAR            | 0.00         | 0.00           | 0.00              | 0.00          | 0.00           | 0.00              | 0.00         | 0.00           | 0.00              | N.C                         | N.C   | N.C    | N.C    | N.C   | N.C    | N.C   | N.C    | N.C    |
| RAGI             | 0.57         | 619.06         | 0.19              | 0.22          | 645.20         | 0.07              | 0.06         | 509.60         | 0.02              | -29.64                      | 7.22  | -24.57 | -9.13  | -4.76 | -13.45 | 16.58 | 13.89  | 32.77  |
| BIRI             | 8.07         | 590.40         | 8.56              | 9.03          | 609.40         | 9.45              | 9.57         | 305.10         | 6.55              | 2.72                        | 6.58  | 9.48   | 2.85   | -7.84 | -5.22  | 9.09  | 18.07  | 28.80  |
| MUNG             | 9.39         | 590.80         | 12.24             | 9.53          | 531.80         | 10.79             | 9.74         | 311.90         | 8.64              | 1.52                        | 2.63  | 4.19   | 3.03   | -0.97 | 2.03   | 11.47 | 19.26  | 32.93  |
| KULTHI           | 4.91         | 580.60         | 2.37              | 4.80          | 598.80         | 2.30              | 4.24         | 317.20         | 1.33              | 3.22                        | 2.94  | 6.26   | 0.34   | -0.71 | -0.38  | -0.90 | 24.59  | 23.47  |
| ARHAR            | 2.97         | 771.40         | 4.52              | 2.92          | 818.00         | 4.52              | 2.43         | 676.30         | 3.94              | 3.51                        | 3.37  | 6.99   | -2.76  | 0.49  | -2.28  | 3.92  | 16.54  | 21.11  |
| GRAM             | 0.26         | 752.80         | 0.33              | 0.26          | 660.20         | 0.27              | 0.30         | 453.60         | 0.33              | 3.93                        | 4.60  | 8.72   | -10.61 | 2.18  | -8.66  | 1.23  | 1.63   | 2.88   |
| TIL              | 7.09         | 581.60         | 7.53              | 10.45         | 521.40         | 9.34              | 10.99        | 290.80         | 7.47              | 4.73                        | 8.73  | 13.87  | 11.21  | -9.25 | 0.92   | 12.35 | 24.09  | 39.42  |
| MUSTARD          | 1.29         | 593.00         | 1.47              | 1.54          | 652.60         | 1.87              | 1.67         | 280.00         | 1.08              | 1.42                        | 3.90  | 5.37   | -0.52  | -6.42 | -6.91  | 0.96  | -22.99 | -22.25 |
| GROUNDNUT        | 8.36         | 1266.60        | 17.16             | 6.45          | 1184.20        | 12.24             | 5.51         | 1101.20        | 11.73             | -0.47                       | 2.37  | 1.88   | -19.69 | -5.58 | -24.17 | -0.37 | 7.28   | 6.89   |
| ONION            | 0.76         | 8287.40        | 4.58              | 0.86          | 8898.00        | 5.30              | 1.08         | 8778.30        | 8.47              | 6.71                        | 1.96  | 8.80   | 1.66   | -1.53 | 0.10   | 5.63  | 7.43   | 13.48  |
| POTATO           | 0.13         | 9395.20        | 0.52              | 0.14          | 10347.40       | 0.60              | 0.16         | 9869.80        | 0.78              | 10.13                       | -1.32 | 8.68   | 2.17   | 3.86  | 6.12   | -0.87 | 4.73   | 3.82   |
| SUGARCANE        | 0.63         | 6931.00        | 5.74              | 0.60          | 7460.50        | 5.64              | 0.48         | 6952.74        | 5.22              | 0.82                        | 2.91  | 3.75   | -17.16 | -1.88 | -18.72 | -6.80 | -5.83  | -12.23 |
| JUTE             | 0.01         | 1087.20        | 0.01              | 0.00          | 252.00         | 0.00              | 0.00         | 0.00           | 0.00              | 4.01                        | -6.43 | -2.68  | -      | -     | -      | N.C   | N.C    | N.C    |
| COTTON           | 0.02         | 150.96         | 0.01              | 0.01          | 114.24         | 0.00              | 0.04         | 85.12          | 0.01              | 4.01                        | -6.43 | -2.68  | -      | -     | -      | -     | -      | -      |

Source: As in Table 3.1

From the table 2.4, it is evident that Paddy is the principal crop of the district. In the first period, it covered 37.27% of GCA, which has increased to 39.40% in the final period. The yield level which was 1622 kgs/ha in the first period has gone up to 1682 kgs/ha in the final period, thus in comparison to first period, the area has gone up by 2.13% whereas the yield level has gone up by 60.3 kgs/ha. In the district, after Paddy, Mung, Biri, Groundnut, Til and Kulthi enjoys higher % of GCA. Maize is second among Cereals as per area coverage. In the first period the share in GCA of Maize was 1.37%, which came down to 1.25% in the final period. The yield level of maize, which was 1,000 kgs/ha in the first period, has gone down to 726.30 kgs/ha in the final period. The share of Wheat in GCA was very less and going down over the periods along with its yield level.

Among pulses, mung has covered 9.39% of GCA in the first period, which increased to 9.74% of GCA in the final period, but the yield level of mung, which was 590.8 kgs/ha in the first period, has gone down to 311.90 kgs/ha. Biri accounted for 8.07% of GCA in the first period, which has increased, to 9.57% in the final period. But like mung, its yield level was gone down to 305.10 kgs/ha from 590.9 kgs/ha in the first period. Under Kulthi 4.91% of GCA was there in the first period, which has gone down by 0.67% in the final period. The yield level of Kulthi, which was 580.6 kgs/ha in the first period, has gone down to 317.20 kgs/ha in the final period.

Among oilseeds, Til and Groundnut has largest percentage share in GCA. In first period 7.09% of GCA was under Til which increased to 10.99% in the final period. The yield level of Til which was 581.6 kgs/ha in the first period has gone down to 290.8 kgs/ha thus facing almost half a decline in yield level. Groundnut has 8.36% of GCA coverage in the first period, which has gone down to 5.51% in the final period. Also the yield level, which was 1266 kgs/ha in the first period, was gone down by 165 kgs/ha in the final period.

Among cash crops, Onion enjoys highest percentage of GCA followed by Sugarcane and Potato. In the first period, 0.76% of GCA was under Onion, which has gone up to 1.08 kgs/ha in the final period. Similarly there is an improvement in the yield level as the yield level, which was 8287.4 kgs/ha in

the first period, has gone up to 8778.3 kgs/ha in the final period. In case of Sugarcane, 0.63% of GCA was under the crop during first period, which has gone down to 0.48% in the final period. But, the yield level, which was 6931 kgs/ha in the first period, has gone up to 6952 kgs/ha in the final period. In case of potato 0.63% GCA was under the crop in the first period, which has gone down to 0.16% in the final period. Similarly, the yield level, which was 9395.2 kgs/ha in the first period, has gone up to 9869.8 kgs/ha in the final period. Jute and cotton together enjoys less than 0.05% of GCA of the district, thus insignificant in coverage as well as contribution to overall production.

#### OBSERVATIONS

- (1) Paddy is the single most important crop of the district in terms of area coverage as well as contribution to total output in all the period followed by Biri, Mung, Kulthi, and Groundnut and Til.
- (2) In comparison to first period % share of area has gone down for Paddy, Wheat, Maize, Ragi, (i.e. Cereals), Kulthi, Arhar (pulses), Groundnut, Sugarcane and Jute in second period. In case of yield, the yield of Wheat, mung, Gram, Til, Groundnut and Cotton has gone down in second period. In third period, the % share area of Wheat, Ragi, Kulthi, Arhar, Groundnut, and Sugarcane has gone down in comparison to second period. And in case of yield level, except, Sugarcane the yield of all other crops has gone down in third period.
- (3) There is a secular decline in area share of Wheat, Ragi, Kulthi, Arhar, Groundnut and Sugarcane and in case of yield; it is for Wheat, mung, Gram, Til, Groundnut and Cotton.
- (4) In the first period, share of area less than the state Average was in the case of Paddy, Wheat, Maize, Ragi, Gram, Mustard, Jute and Cotton. And in the third period, it is in case of Paddy, Ragi, Gram and Cotton.

(5) In the first period, the yield level of Paddy, Maize, and Gram was less than the state average whereas in third period, except, Onion, potato and Sugarcane, the yield of all other crops was less than state average.

(6) As far yield level is concerned, the second period's performance was better than the other two periods.

## 2.5 GANJAM

With a total area of 12,531 sq. km, the district of Ganjam forms the part of Coastal region of the state in the southeastern side of the state. As per *Orissa development report (2001)*, Ganjam ranks 5<sup>th</sup> in the infrastructural development index. The average size of land holding of the district was 1.23 ha in 1980, which has come down to 1.03 ha in 1990 (CMIE, Oct 2000). The 18 major crops of the district covered 86.6% of GCA in first period, which has gone up to 86.43% of GCA in the final period.

**TABLE NO: 2.5  
CROP-WISE AREA, PRODUCTION AND YIELD IN GANJAM DISTRICT—1985-86 TO 1999-00**

| NAME OF CROPS | FIRST PERIOD |                |                   | SECOND PERIOD |                |                   | THIRD PERIOD |                |                   | ANNUAL COMPOUND GROWTH RATE(%) |        |        |        |        |        |        |       |        |
|---------------|--------------|----------------|-------------------|---------------|----------------|-------------------|--------------|----------------|-------------------|--------------------------------|--------|--------|--------|--------|--------|--------|-------|--------|
|               | 85-90        |                |                   | 90-95         |                |                   | 95-00        |                |                   | 85-90                          |        |        | 90-95  |        |        | 95-00  |       |        |
|               | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA      | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | AREA                           | YIELD  | OUTPUT | AREA   | YIELD  | OUTPUT | AREA   | YIELD | OUTPUT |
| PADDY         | 35.86        | 2473.80        | 49.32             | 36.00         | 2923.40        | 51.82             | 40.51        | 2092.20        | 49.99             | 1.20                           | 7.73   | 9.02   | 1.69   | 2.63   | 4.37   | 1.85   | 6.35  | 8.32   |
| WHEAT         | 0.06         | 1546.50        | 0.07              | 0.03          | 1746.20        | 0.04              | 0.01         | 1753.00        | 0.02              | -2.09                          | -5.64  | -7.61  | -40.29 | -2.76  | -41.93 | 7.59   | 1.66  | 9.38   |
| MAIZE         | 1.55         | 924.00         | 0.76              | 1.55          | 1059.80        | 0.80              | 1.78         | 1139.60        | 1.18              | 1.76                           | -5.78  | -4.12  | 5.21   | 8.03   | 13.66  | 1.55   | -1.91 | -0.38  |
| JAWAR         | 0.47         | 597.20         | 0.13              | 0.35          | 692.20         | 0.10              | 0.41         | 558.40         | 0.12              | 4.41                           | -5.63  | -1.46  | 0.32   | -5.92  | -5.62  | -0.05  | 12.20 | 12.14  |
| RAGI          | 7.61         | 730.71         | 2.93              | 6.87          | 845.80         | 2.74              | 7.60         | 957.10         | 4.11              | -0.42                          | 13.14  | 12.66  | -1.03  | 0.22   | -0.81  | 7.31   | 8.48  | 16.41  |
| BIRI          | 6.20         | 458.00         | 4.92              | 7.35          | 500.40         | 5.91              | 6.88         | 483.80         | 6.38              | 1.11                           | -8.69  | -7.68  | -1.35  | -1.02  | -2.36  | 10.32  | 1.76  | 12.27  |
| MUNG          | 16.22        | 433.80         | 15.45             | 17.11         | 488.00         | 16.57             | 16.01        | 482.30         | 18.49             | -6.03                          | -13.99 | -19.18 | -4.01  | -1.03  | -5.00  | 12.36  | 4.37  | 17.27  |
| KULTHI        | 3.87         | 364.00         | 1.14              | 3.32          | 407.60         | 1.01              | 3.17         | 412.30         | 1.16              | 3.46                           | -7.67  | -4.48  | -4.96  | 2.40   | -2.68  | 5.78   | 2.55  | 8.47   |
| ARHAR         | 1.90         | 609.80         | 2.21              | 1.72          | 712.00         | 2.15              | 1.68         | 671.70         | 2.41              | 4.28                           | -4.76  | -0.68  | -2.66  | 10.13  | 7.20   | 9.31   | 2.94  | 12.52  |
| GRAM          | 0.04         | 590.00         | 0.04              | 0.03          | 607.00         | 0.03              | 0.04         | 608.20         | 0.04              | -8.15                          | -14.14 | -21.14 | -24.45 | -0.42  | -24.77 | 9.17   | -0.03 | 9.14   |
| TIL           | 4.45         | 479.80         | 3.73              | 4.50          | 370.60         | 2.65              | 4.07         | 442.30         | 3.51              | 12.49                          | -5.24  | 6.59   | -5.01  | 14.32  | 8.60   | 19.03  | 2.87  | 22.45  |
| MUSTARD       | 0.45         | 488.20         | 0.41              | 0.45          | 514.20         | 0.40              | 0.54         | 538.70         | 0.60              | -4.46                          | -3.83  | -8.12  | 1.68   | 2.03   | 3.74   | -2.72  | 3.66  | 0.84   |
| GROUNDNUT     | 6.14         | 1025.60        | 9.97              | 4.96          | 1139.40        | 8.01              | 2.72         | 1180.90        | 5.61              | 0.05                           | -7.66  | -7.62  | -17.33 | 7.76   | -10.91 | 4.90   | 2.69  | 7.72   |
| ONION         | 0.16         | 6000.00        | 0.66              | 0.23          | 6577.80        | 0.97              | 0.26         | 6914.10        | 1.34              | -12.70                         | 1.61   | -11.29 | -3.10  | -1.35  | -4.41  | 4.64   | -1.82 | 2.73   |
| POTATO        | 0.06         | 6825.20        | 0.18              | 0.05          | 8145.20        | 0.14              | 0.04         | 5717.50        | 0.09              | 20.91                          | 1.37   | 22.56  | -2.00  | 8.39   | 6.22   | -10.81 | 8.52  | -3.21  |
| SUGARCANE     | 0.88         | 7156.20        | 7.96              | 0.77          | 7442.00        | 6.63              | 0.49         | 7074.80        | 4.77              | 7.66                           | 1.90   | 9.71   | -15.99 | 1.14   | -15.03 | 0.59   | -1.32 | -0.74  |
| JUTE          | 0.09         | 977.04         | 0.09              | 0.00          | 885.60         | 0.00              | 0.00         | 150.44         | 0.00              | 1.71                           | -2.66  | -0.99  | -30.94 | -29.83 | -51.54 | 0.00   | -8.21 | -8.21  |
| COTTON        | 0.07         | 163.88         | 0.03              | 0.07          | 137.70         | 0.02              | 0.24         | 221.39         | 0.17              | 1.71                           | -2.66  | -0.99  | -30.94 | -29.83 | -51.54 | 0.00   | -8.21 | -8.21  |

Source: As in Table no 3.1

From the table 2.5, it is evident that Paddy is the principal crop of the district w.r.t. Area coverage and contribution to total output in all periods followed by mung, Biri, Ragi Groundnut and Kulthi. In first period, Paddy covered 35.86% of GCA, which has increased to 40.5% of GCA in the final period. The average yield level of paddy, which was 2473.8 kgs/ha in the first period, has gone up to 2923 kgs/ha in the second period but has gone down substantially (i.e. 2092 kgs/ha) in the final period. Ragi ranks second in Area coverage among Cereals in the district. In first period, 7.61% of GCA was under Ragi, which remain same in the final period. But, the yield level, which was 730.71 kgs/ha in the first period, has gone up to 957 kgs/ha in the final period. Maize covered 1.55% of GCA in the first period with yield level 924 kgs/ha. In the final period, 1.78% of GCA was being covered by Maize with an increased yield level of 1139.6 kgs/ha. Wheat and Jawar gets least priority among Cereal in the district.

Among pulses, mung covered 16.22% of GCA in first period with yield level 433.80 kgs/ha. In the final period, the area covered under mung was 16.01 % (marginally less than first period) with a higher yield level i.e. 982.3 kgs/ha. Biri is the second important pulses of the district. The area covered under Biri during first period was 6.20% of GCA with yield level of 458.00 kgs/ha. In the final period, 6.88% of GCA was under Biri with an increased yield level of 483.8 kgs/ha. In first period, 3.87% of GCA was under Kulthi with yield level of 364 kgs/ha. In the final period, though the share of Area has gone down by 0.7%, the yield has increased by 38.3 kgs/ha. In case of Arhar, in the final period though the area share has gone down but the yield level increased by 62 kgs/ha in comparison to first period.

In case of oilseeds, Groundnut is the most important one in the district. The percentage area under Groundnut during the first period was 6.14%, which has gone down to 2.72% in final period. But the yield level, which was 1025 kgs/ha in the first period, has increased to 1180.9 kgs/ha. In first period 4.45% of GCA was under Til with yield level 479.8 Kgs/ha but in the final period there was a decline in area share by 0.38% and yield level by 37.5 kgs/ha. In case of

Sugarcane 0.88% of GCA was under the crop in first period with yield level 7156 kgs/ha but in final period, the area and yield has gone down to 0.49% and 7074.8 kgs/ha respectively. Potato and Cotton, the two other important cash crops of the district, whose area coverage was less than 0.15% of GCA in the first period increased to 0.28% of GCA in the final period. The yield level of Potato has gone down during final period whereas the yield level of Cotton has gone up in comparison to first period.

#### OBSERVATIONS

- (1) Like other districts, Paddy is the principal crop of the district followed by mung, Ragi, Biri and Kulthi w.r.t. Percentage shares in GCA and contribution to total output.
- (2) In comparison to first period, the share of area has gone down for Wheat, Ragi, Kulthi, Arhar, Gram, Groundnut, Potato, and Sugarcane in second period but the yield level of Til and cotton has gone down in second period.
- (3) In comparison to second period, during third period, the share of area has gone down for Wheat, Biri, Potato, and Sugarcane. And in case of yield, the yield level has gone down for paddy, Jawar, Biri, Arhar, Potato and Sugarcane in third period with comparison to second period.
- (4) Over all the periods, there is a secular decline in area share of Wheat, Kulthi, Arhar, Groundnut, Potato and Sugarcane.
- (5) In comparison to state average, % share of area during first period of Paddy, Wheat, Maize, Kulthi, Gram, Mustard, Onion, potato and Jute was less than the state average. In final period, it is in case of Paddy, wheat, maize, Kulthi, Gram, Mustard, Groundnut, Onion, Potato and Cotton.
- (6) As far yield level is concerned, in first period, except, Paddy, Ragi, Mustard, Sugarcane, Jute and Cotton, other crops have yield level less than state average. In third period, only of Maize, Arhar, Groundnut, and Potato has yield level less than state average.
- (7) In general, the district has performed well in second period on the basis of crop yield.

## 2.6 Kalahandi

With a total area of 11,772 sq km, the district of Kalahandi forms the part of hilly and plateau region in the western side the state. As per *Orissa development report (2001)* Kalahandi is in the bottom as far the infrastructure

development index is concerned. The average size of land holding was 1.89 ha in 1990. The 18 major crops covered 76.74% of GCA in first period, which has increased to 80.14% in the second period and 86.17% in the final period.

From the Table 3.6, it is clear that Paddy is the principal crop of the district. In first period, 38.31 % of GCA was under the crop with yield level 1156 kgs/ha. In the final period, there is an increase in both share of area as well as yield. 43.06% of GCA was under the crop with 1460 kgs/ha yield level. Ragi is second important cereal of the district. In first period, 4.03% of GCA was under the crop with yield level of 633.5 kgs/ha. But in the final period both yield level (984.4 kgs/ha) and area share (1.72%) has gone down. In case of maize, during first period, 2.26% of GCA was under the crop with yield level 974 kgs/ha. In the final period share of area has gone down (1.14%) but the yield level has gone up (1121 kgs/ha). In case of Jawar 0.72% of GCA with yield level 6.31 kgs/ha was under the crop in the first period. But, in the final period, the share of area has gone down (0.29%) along with yield level (396.2 kgs/ha).

Among pulses mung has 6.71% of GCA with yield level of 565.00 kgs/ha during the first period. In the final period, the area share (9.78%) has gone up but the yield level (310 kgs/ha) has gone down. In case of Biri, 5.25% of GCA with yield level of 562.4 kgs/ha was under the crop during first period but in the final period, the area share has gone up (7.30%) but the yield level has gone down (341.20 kgs/ha). In first period, 5.20 % of GCA was under the Kulthi with yield level of 577.8 kgs/ha but, in the final period, the share of area has gone up (6.05%). But the yield level has gone down (369.8 kgs/ha).

**TABLE NO: 2.6**  
**CROP-WISE AREA, PRODUCTION AND YIELD IN KALAHANDI DISTRICT—1985-86 TO 1999-00**

|               | FIRST PERIOD |                |                   | SECOND PERIOD |                |                   | THIRD PERIOD |                |                   | ANNUAL COMPOUND GROWTH RATE |       |        |         |        |        |         |        |        |
|---------------|--------------|----------------|-------------------|---------------|----------------|-------------------|--------------|----------------|-------------------|-----------------------------|-------|--------|---------|--------|--------|---------|--------|--------|
|               | 1985-90      |                |                   | 1990-95       |                |                   | 1995-00      |                |                   | 1985-90                     |       |        | 1990-95 |        |        | 1995-00 |        |        |
| NAME OF CROPS | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA      | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | AREA                        | YIELD | OUTPUT | AREA    | YIELD  | OUTPUT | AREA    | YIELD  | OUTPUT |
| PADDY         | 38.31        | 1156.40        | 37.35             | 38.62         | 1495.40        | 42.00             | 43.06        | 1460.80        | 48.61             | -0.36                       | 0.16  | -0.20  | 0.69    | 3.04   | 3.75   | -0.56   | 7.57   | 6.97   |
| WHEAT         | 0.25         | 1539.00        | 0.47              | 0.12          | 1345.40        | 0.16              | 0.19         | 978.20         | 0.21              | -27.79                      | -0.09 | -27.85 | 11.71   | -8.94  | 1.73   | 7.78    | 9.69   | 18.22  |
| MAIZE         | 2.26         | 974.40         | 1.82              | 1.44          | 899.60         | 0.95              | 1.14         | 1121.90        | 0.98              | -6.18                       | 2.39  | -3.94  | -4.41   | -20.92 | -24.41 | -0.41   | -0.06  | -0.47  |
| JAWAR         | 0.72         | 631.00         | 0.33              | 0.26          | 592.60         | 0.09              | 0.24         | 396.20         | 0.06              | -11.71                      | -8.29 | -19.03 | -3.45   | -7.72  | -10.91 | 0.99    | 5.02   | 6.06   |
| RAGI          | 4.03         | 633.50         | 2.03              | 2.65          | 740.40         | 1.38              | 1.72         | 484.40         | 0.64              | -4.43                       | 7.01  | 2.28   | -4.60   | -11.48 | -15.56 | 24.09   | 9.14   | 35.43  |
| BIRI          | 5.25         | 562.40         | 8.18              | 7.12          | 538.00         | 9.02              | 7.30         | 341.20         | 6.58              | 6.10                        | 2.43  | 8.68   | 4.58    | -6.54  | -2.26  | 5.39    | 23.72  | 30.38  |
| MUNG          | 6.71         | 565.60         | 13.12             | 9.68          | 484.20         | 13.60             | 9.78         | 310.10         | 9.87              | 13.94                       | 4.93  | 19.56  | 2.17    | -6.98  | -4.96  | 8.21    | 14.03  | 23.39  |
| KULTHI        | 5.20         | 577.80         | 3.92              | 5.59          | 525.00         | 3.22              | 6.05         | 369.80         | 2.66              | 14.83                       | 9.90  | 26.20  | -2.36   | -3.71  | -5.98  | -0.59   | 16.32  | 15.64  |
| ARHAR         | 2.82         | 790.80         | 6.75              | 3.42          | 701.40         | 6.20              | 3.51         | 467.60         | 4.58              | 4.75                        | 5.32  | 10.32  | 4.51    | -8.82  | -4.71  | 7.63    | 10.55  | 18.99  |
| GRAM          | 1.33         | 704.40         | 2.47              | 1.27          | 585.20         | 1.66              | 1.63         | 538.20         | 2.09              | 10.05                       | 9.79  | 20.83  | -0.45   | -10.44 | -10.85 | 3.23    | 7.16   | 10.62  |
| TIL           | 4.44         | 449.60         | 5.56              | 4.47          | 401.00         | 4.30              | 4.51         | 216.70         | 2.59              | 3.56                        | 5.42  | 9.17   | -0.96   | -7.19  | -8.08  | 2.35    | 23.46  | 26.36  |
| MUSTARD       | 2.10         | 508.80         | 3.16              | 1.83          | 444.20         | 2.09              | 1.78         | 324.60         | 1.64              | -4.98                       | 0.86  | -4.17  | -1.51   | -2.94  | -4.41  | -4.44   | -3.98  | -8.25  |
| GROUNDNUT     | 2.23         | 1067.40        | 5.99              | 2.36          | 1381.00        | 7.01              | 3.47         | 1192.10        | 9.47              | 8.68                        | 5.67  | 14.85  | 0.98    | 4.42   | 5.45   | -0.70   | 7.47   | 6.72   |
| ONION         | 0.58         | 6923.20        | 4.42              | 0.52          | 4674.40        | 2.33              | 0.65         | 6184.60        | 4.11              | -3.66                       | -2.08 | -5.66  | 7.62    | -3.23  | 4.15   | 1.04    | 11.47  | 12.63  |
| POTATO        | 0.00         | 5506.80        | 0.01              | 0.00          | 7132.40        | 0.02              | 0.01         | 6818.90        | 0.02              | -19.73                      | -1.93 | -21.28 | 41.42   | -0.63  | 40.54  | -27.52  | -8.29  | -33.53 |
| SUGARCANE     | 0.33         | 6336.80        | 4.24              | 0.54          | 6332.80        | 5.80              | 0.49         | 5976.99        | 5.27              | 2.65                        | -0.43 | 2.21   | 2.29    | 2.20   | 4.54   | -5.54   | -10.76 | -15.70 |
| JUTE          | 0.00         | 0.00           | 0.00              | 0.00          | 0.00           | 0.00              | 0.00         | 0.00           | 0.00              | N.C                         | N.C   | N.C    | N.C     | N.C    | N.C    | N.C     | N.C    | N.C    |
| COTTON        | 0.18         | 221.34         | 0.18              | 0.27          | 163.20         | 0.16              | 0.65         | 252.33         | 0.60              | -                           | -     | -      | -       | -      | -      | -       | -      | -      |

Source: As in Table no 3.1

Among oilseeds, Til is the most important one in the district. In first period, 4.99% of GCA was under the crop with yield level 449.6 kgs/ha. But, in the final period, though the share of Area has marginally gone up (4.51%) but the yield level had gone down to 216.7 kgs/ha. In case of Groundnut, during first period, 2.23 % of GCA was under the crop with yield level of 1067 kgs/ha. In the final period both the area share (3.97 %) as well as yield level (1192 kgs/ha) has gone up. In case of Mustard, in the final period both the share of area (1.78%) as well as yield level (324.6 kgs/ha) has gone down.

Among cash crops, onion is the most important one. During first period, 0.58 % of GCA was under the crop with yield level 6923 kgs/ha. But, in the final period, though the area share has gone up (0.65 %) but the yield level has gone down (6184 kgs/ha). In case of Sugarcane, during first period, 0.33 % of GCA was under the crop with yield level 6336 kgs/ha. In the final period, though the area share has gone up (0.49%) but the yield level has gone down to 5976.9 kgs/ha. In case of Cotton, 0.18% of GCA was under the crop with yield level of 221.34 kgs/ha. In the final period both share of area (0.65%) as well as yield level (252 kgs/ha) has gone up.

#### OBSERVATIONS

- (1) Paddy is the principal crop of the district w.r.t area under the crop as well contribution to total output.
- (2) In comparison to first period, the % share of area of Wheat, Maize, Ragi, Gram, Mustard and Groundnut has gone down in the second period. In case of yield, except, Paddy, Ragi, Groundnut, Onion and Potato, the yield level of all other crops has gone down in second period.
- (3) In comparison to second period, in third period, the share of area of Maize, Jawar, Ragi, Mustard and Sugarcane has gone down. In case of yield, except the yield level of Maize, Onion and Cotton, the yield level of all other crop has gone down.
- (4) There is a secular decline in area share of Jawar, Ragi and Mustard. And in case of yield, it is for Wheat, Jawar, Biri, Mung, Kulthi, Arhar, Gram, Til Mustard and Sugarcane.
- (5) In first period, with comparison to state average, the area share of Paddy, Wheat, Biri, Mung, Groundnut, Potato, Sugarcane and Jute was less. And in case of yield, the yield

level of Paddy, Wheat, Maize, Jawar, Til, Groundnut, Potato, Sugarcane and Cotton was less than the state average.

(6) In the final period, the area share of Paddy, Wheat, Maize, Ragi, Groundnut and Potato was less than the state average. And in case of yield, except, the yield level of Ragi, Gram and Cotton, the yield level of all other crops was less than the state average.

(7) In terms of yield level, the first period's performance was better than the other two periods.

## 2.7 KEONJHAR

With a total area of 8,303 sq.km, the district of Keonjhar forms the part of northern region of the state. As per *Orissa development report (2001)*, the district ranks 11<sup>th</sup> in the infrastructural development index (2001). The average size of land holding of the district was 1.28 ha as per the latest report (1990). The 18 major crops covered 80.71% of GCA in the first period, which came down to 77.91% in the last period. From the table 3.7 it is evident that Paddy is the principal crop of the district, which covers more than 50% of GCA in all the periods. In first period, 51.28% of GCA was under the crop with yield level 1342kgs/ha. In the final period, share of Paddy in GCA has gone up to 53.63% with increased yield level of 1412.8 kgs/ha. Maize is the second important cereal of the district. In the first period, 5.18% of GCA was under the crop with yield level 1022 kgs/ha but in the final period, the share in GCA as well as yield level has gone down to 3.92% and 861 kgs/ha respectively. Ragi is another important coarse cereal which covered 1.15% of GCA with yield level 574.27 kgs/ha but in the final period, the share in area has gone down (0.13%) but yield level has increased (607.8 kgs/ha).

**TABLE NO: 2.7**  
**CROP-WISE AREA, PRODUCTION AND YIELD IN KEONJHAR DISTRICT—1985-86 TO 1999-00**

| NAME OF CROPS | FIRST PERIOD |                |                   | SECOND PERIOD |                |                   | THIRD PERIOD |                |                   | ANNUAL COMPOUND GROWTH RATE |       |        |        |        |        |        |        |        |
|---------------|--------------|----------------|-------------------|---------------|----------------|-------------------|--------------|----------------|-------------------|-----------------------------|-------|--------|--------|--------|--------|--------|--------|--------|
|               | 85-90        |                |                   | 90-95         |                |                   | 95-00        |                |                   | 85-90                       |       |        | 90-95  |        |        | 95-00  |        |        |
|               | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA      | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | AREA                        | YIELD | OUTPUT | AREA   | YIELD  | OUTPUT | AREA   | YIELD  | OUTPUT |
| PADDY         | 51.28        | 1342.20        | 55.25             | 51.33         | 1616.40        | 60.85             | 53.63        | 1412.80        | 61.49             | -1.45                       | 5.33  | 3.81   | -0.43  | 2.57   | 2.13   | -0.54  | -5.87  | -6.38  |
| WHEAT         | 0.49         | 1825.60        | 1.11              | 0.35          | 1629.00        | 0.62              | 0.37         | 1598.40        | 0.72              | -7.48                       | -9.14 | -15.94 | 0.29   | 5.41   | 5.72   | -1.99  | -15.48 | -17.16 |
| MAIZE         | 5.18         | 1022.60        | 4.40              | 5.10          | 1028.60        | 3.85              | 3.42         | 861.00         | 4.62              | -3.72                       | 14.06 | 9.82   | 1.80   | -1.50  | 0.28   | 5.28   | -2.07  | 3.10   |
| JAWAR         | 0.18         | 975.80         | 0.13              | 0.16          | 800.00         | 0.08              | 0.10         | 634.80         | 0.04              | -17.47                      | -1.72 | -18.89 | -3.51  | -12.72 | -15.78 | 23.86  | -11.01 | 10.22  |
| RAGI          | 1.15         | 574.27         | 0.01              | 0.28          | 716.80         | 0.00              | 0.13         | 607.80         | 0.00              | -15.58                      | 0.92  | -14.80 | -7.70  | -1.11  | -8.72  | 21.72  | -6.60  | 13.69  |
| BIRI          | 4.75         | 606.00         | 7.63              | 4.47          | 625.80         | 6.76              | 3.59         | 471.60         | 4.37              | -0.23                       | 1.89  | 1.65   | -2.33  | -4.55  | -6.77  | 4.48   | -21.41 | -17.89 |
| MUNG          | 2.78         | 588.40         | 0.00              | 2.71          | 514.80         | 0.00              | 2.17         | 454.40         | 0.00              | -0.78                       | 1.43  | 0.64   | -0.28  | -2.99  | -3.26  | -4.33  | -15.81 | -19.45 |
| KULTHI        | 4.73         | 447.60         | 2.61              | 3.75          | 445.20         | 2.23              | 4.66         | 439.00         | 2.45              | -3.37                       | 14.48 | 10.63  | 4.76   | -0.68  | 4.04   | 0.25   | -23.66 | -23.47 |
| ARHAR         | 2.08         | 820.20         | 4.92              | 2.45          | 877.40         | 5.62              | 2.56         | 919.80         | 6.85              | 5.04                        | 12.78 | 18.46  | 14.22  | -4.01  | 9.64   | -5.20  | 3.10   | -2.26  |
| GRAM          | 0.54         | 651.00         | 0.90              | 0.39          | 543.80         | 0.59              | 0.71         | 847.60         | 1.59              | -1.87                       | 9.53  | 7.48   | 7.64   | -1.63  | 5.89   | 7.01   | 8.92   | 16.56  |
| TIL           | 2.12         | 506.40         | 2.97              | 2.19          | 423.00         | 2.25              | 1.82         | 355.20         | 1.80              | -0.16                       | 3.61  | 3.44   | 5.63   | 1.62   | 7.34   | -12.27 | -16.00 | -26.31 |
| MUSTARD       | 2.30         | 429.00         | 2.96              | 2.32          | 479.00         | 2.87              | 2.47         | 465.20         | 3.27              | -1.53                       | 11.04 | 9.34   | 1.03   | 1.02   | 2.06   | 2.90   | -14.71 | -12.24 |
| GROUNDNUT     | 1.87         | 1293.80        | 0.00              | 1.49          | 1442.00        | 0.00              | 1.31         | 1351.80        | 0.00              | 3.42                        | -7.94 | -4.79  | 4.90   | 6.19   | 11.39  | -16.01 | -14.14 | -27.89 |
| ONION         | 0.24         | 4511.00        | 1.20              | 0.26          | 4113.20        | 1.09              | 0.27         | 5599.60        | 1.79              | 8.32                        | 5.59  | 14.37  | -11.79 | -8.24  | -19.06 | 5.57   | 18.28  | 24.87  |
| POTATO        | 0.06         | 8914.00        | 0.00              | 0.05          | 9033.60        | 0.00              | 0.05         | 9816.40        | 0.00              | -6.27                       | -7.94 | -13.71 | 4.94   | 0.80   | 5.78   | -0.45  | 2.61   | 2.15   |
| SUGARCANE     | 0.16         | 6082.40        | 0.00              | 0.19          | 6169.50        | 0.00              | 0.09         | 5462.60        | 0.00              | 34.18                       | 0.31  | 34.60  | -25.61 | 0.11   | -25.53 | -18.60 | -9.68  | -26.48 |
| JUTE          | 0.78         | 1570.68        | 2.01              | 0.70          | 1880.64        | 1.92              | 0.53         | 2146.20        | 1.91              | -4.29                       | 17.67 | 12.63  | -12.16 | 3.65   | -8.95  | -3.17  | -10.41 | -13.25 |
| COTTON        | 0.00         | 113.22         | 0.00              | 0.00          | 0.00           | 0.00              | 0.02         | 37.40          | 0.00              | -4.29                       | 17.67 | 12.63  | -12.16 | 3.65   | -8.95  | -3.17  | -10.41 | -13.25 |

Source: As in Table no 3.7

Biri is one of the important pulses of the district. In first period 4.75% of GCA with yield level 606 kgs/ha was under the crop. But, in the final period, the area share (3.59%) as well as yield level (471.00 kgs/ha) has gone down. Kulthi is the second important pulses of the district. In the first period, 4.73% of GCA was under the crop with yield level 497 kgs/ha. But during final period, the area share (4.66%) as well as yield level (439 kgs/ha) has gone down. In case of mung, in first period, 2.78% of GCA was under the crop with yield level 588 kgs/ha but in the final period, the share in Area (2.17%) as well as yield level (454 kgs/ha) has gone down. In case of Arhar, the share in Area (2.56%) and yield level (919.8k) has gone up in the final period in comparison to first period.

Among oilseeds mustard is the most important one. In the first period, 2.3% of GCA was under the crop with yield level of 429 kgs/ha. In the final period, there was an increase in Area share (2.47%) and yield level (465.2 kgs/ha). Til occupied second place among oilseeds w.r.t. area share. In first period, 2.12% of GCA was under Til with yield level of 506 kgs/ha but in the final period, the area share (1.82%) as well as yield level (355.2 kgs/ha) has gone down. Among cash crops, Jute is the most important one. In first period 0.78 % of GCA was under the crop with yield level 1570 kgs/ha. In the final period, there was a fall in area share by 0.25% but the yield level has gone up to 576 kgs/ha. Sugarcane is the second important cash crop. During first period, 0.16% of GCA was under the crop with yield level 6,082 kgs/ha but in the final period there was a fall in area share (0.09%) as well as yield level (2146.2 kgs/ha). In case of Onion 0.24% of GCA was under the crop with yield level 4511 kgs/ha. In the final period both area share (0.27%) as well as yield level (5599 kgs/ha) has gone up.

#### OBSERVATIONS

- (1) Paddy is the principal crop of the district, w.r.t. Area share as well as contribution to total output.
- (2) In comparison to first period, except, Paddy, Til, Mustard, Onion and Sugarcane, the area share of all other crops has gone down in the second period. And in comparison to second period, in third period, the area share of Maize, Jawar, Ragi, Biri, Mung, Til, Groundnut, Sugarcane, and Jute have

gone down. There is a secular decline in area share of Maize, Jawar, Ragi, Biri, Mung, Groundnut and Jute.

- (3) In case of yield, in second period, the yield of Wheat, Jawar, mung, Kulthi, gram, Groundnut and Onion have gone down in comparison to first period. In third period, the yield of all most all crops except Gram, Onion, Potato, Sugarcane and jute have gone down in comparison to second period. There is a secular decline in yield level of Jawar, Mung, Kulthi and Groundnut.
- (4) Comparing with state average, in first period, the area share of Wheat, Jawar, Ragi, Biri, Mustard, Til, Groundnut and Onion was less. And in third period, the area share of Jawar, Ragi, Biri, Mung, Oil, Groundnut, Onion and Potato are less than state average.
- (5) As far yield level is concerned, in first period, the yield of Paddy, Ragi, Kulthi, Til, Mustard, Onion and Sugarcane was less than state average. And in third period, the yield of Paddy, Maize, Til, Onion and Sugarcane was less than state average.
- (6) The second period's performance was better than the other two periods.

## 3.2.8 KORAPUT

With a total area of 26,961 sq.km the district of Koraput, forms the part of hilly and plateau region, in the southwestern part of Orissa. As per *Orissa development report (2001)*, the district ranks 10<sup>th</sup> in the infrastructural development index. The average size of land holding was 1.70 ha in 1990. Like, other district, Paddy is the principal crop of the district. The 18 major crops covered 70.07 % of GCA in the first period, which has increased to 75.06% in final period.

In first period, Paddy covered 35.38% of GCA with yield level 1722 kgs/ha. In the final period, 38.94% of GCA was under the crop with yield level 2036 kgs/ha. The district is the highest producer of Ragi. In first period, 10.66% of GCA was under the crop with yield level 757.77 kgs/ha. In the final period, there is a fall in area share (10.57%) as well as yield level (750 kgs/ha). In case of Maize, 4.58% of GCA was under the crop during first period with yield level 1169.4 kgs/ha. In the final period, there was an increase in area share (5.46 %) with increased yield level (1209.7 kgs/ha).

**Table No: 2.8**  
**Crop-Wise Area, Production And Yield In Koraput District--- 1985-86 To 1999-00**

| NAME OF CROPS | FIRST PERIOD |                |                   | SECOND PERIOD |                |                   | THIRD PERIOD |                |                   | ANNUAL COMPOUND GROWTH RATE |       |        |        |        |        |        |        |        |
|---------------|--------------|----------------|-------------------|---------------|----------------|-------------------|--------------|----------------|-------------------|-----------------------------|-------|--------|--------|--------|--------|--------|--------|--------|
|               | 85-90        |                |                   | 90-95         |                |                   | 95-00        |                |                   | 85-90                       |       |        | 90-95  |        |        | 95-00  |        |        |
|               | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA      | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | AREA                        | YIELD | OUTPUT | AREA   | YIELD  | OUTPUT | AREA   | YIELD  | OUTPUT |
| PADDY         | 35.38        | 1722.20        | 50.39             | 35.65         | 1895.60        | 52.94             | 38.94        | 2036.30        | 63.91             | -0.27                       | -3.14 | -3.41  | 0.79   | 0.75   | 1.55   | 1.40   | 1.92   | 3.35   |
| WHEAT         | 0.33         | 1719.80        | 0.70              | 0.13          | 1443.00        | 0.21              | 0.05         | 1175.90        | 0.08              | -12.71                      | -3.88 | -16.09 | -35.84 | 0.07   | -35.80 | -25.15 | -7.80  | -30.99 |
| MAIZE         | 4.58         | 1169.40        | 4.38              | 4.83          | 1221.60        | 4.53              | 5.46         | 1209.70        | 5.15              | 2.04                        | 14.77 | 17.12  | 2.98   | -1.22  | 1.73   | 9.10   | -6.61  | 1.90   |
| JAWAR         | 1.26         | 885.80         | 0.79              | 0.99          | 684.40         | 0.46              | 0.60         | 670.80         | 0.29              | -5.35                       | -5.95 | -10.98 | -6.28  | -6.15  | -12.04 | -14.80 | -3.28  | -17.59 |
| RAGI          | 10.66        | 757.74         | 6.37              | 10.54         | 931.20         | 7.29              | 10.57        | 750.00         | 0.02              | -0.44                       | 4.72  | 4.25   | -0.16  | -4.58  | -4.73  | 0.24   | 2.75   | 3.00   |
| BIRI          | 2.39         | 524.40         | 3.38              | 2.65          | 589.80         | 3.97              | 2.51         | 356.15         | 2.46              | 2.38                        | 5.75  | 8.27   | 1.37   | -5.84  | -4.55  | -5.86  | -14.75 | -19.75 |
| MUNG          | 1.54         | 560.80         | 2.90              | 1.42          | 518.20         | 2.33              | 1.13         | 342.20         | 1.41              | 7.85                        | 6.49  | 14.86  | -0.12  | -1.56  | -1.67  | -17.65 | -15.91 | -30.76 |
| KULTHI        | 4.08         | 558.40         | 2.85              | 5.54          | 475.20         | 3.04              | 4.37         | 362.35         | 2.03              | 1.52                        | 16.95 | 18.73  | -8.20  | 13.30  | 4.01   | -13.80 | -20.88 | -31.80 |
| ARHAR         | 2.66         | 856.40         | 6.75              | 2.73          | 824.20         | 6.29              | 2.58         | 496.90         | 3.79              | 2.64                        | 11.64 | 14.59  | 1.16   | -1.71  | -0.56  | -4.45  | -6.37  | -10.53 |
| GRAM          | 0.71         | 654.60         | 1.17              | 0.50          | 748.60         | 0.92              | 0.43         | 429.25         | 0.46              | -8.67                       | -0.31 | -8.95  | -14.75 | -5.44  | -19.39 | -3.67  | -19.45 | -22.40 |
| TIL           | 3.29         | 594.60         | 5.46              | 3.31          | 499.80         | 4.28              | 3.29         | 338.45         | 2.99              | 8.72                        | 12.72 | 22.55  | -3.54  | 1.20   | -2.38  | -2.63  | -17.79 | -19.95 |
| MUSTARD       | 1.46         | 547.40         | 2.33              | 1.46          | 506.40         | 2.04              | 1.29         | 335.60         | 1.30              | -0.08                       | 10.22 | 10.13  | 0.42   | -1.12  | -0.71  | -8.56  | -13.97 | -21.33 |
| GROUNDNUT     | 0.40         | 1042.40        | 1.03              | 0.65          | 1201.60        | 1.81              | 1.50         | 1011.20        | 3.63              | 18.28                       | 2.03  | 20.69  | 9.27   | 1.09   | 10.46  | 19.16  | 0.90   | 20.24  |
| ONION         | 0.47         | 8009.60        | 4.12              | 0.38          | 7742.20        | 3.02              | 0.41         | 6002.65        | 2.61              | -4.01                       | -7.24 | -10.96 | -3.47  | -0.61  | -4.06  | -2.11  | -7.95  | -9.89  |
| POTATO        | 0.04         | 8191.80        | 0.19              | 0.04          | 8725.60        | 0.23              | 0.04         | 6940.00        | 0.18              | -0.78                       | -2.92 | -3.68  | -1.71  | 4.32   | 2.53   | -20.38 | -3.00  | -22.77 |
| SUGARCANE     | 0.69         | 5211.00        | 7.01              | 0.54          | 6440.75        | 6.49              | 0.72         | 6050.38        | 8.26              | 3.62                        | 8.82  | 12.75  | -3.80  | -7.13  | -10.66 | -0.79  | 0.62   | -0.18  |
| JUTE          | 0.02         | 1239.12        | 0.03              | 0.01          | 1143.36        | 0.03              | 0.00         | 207.40         | 0.00              | -3.70                       | 2.06  | -1.72  | -16.26 | -15.55 | -29.28 | -8.51  | -16.32 | -23.44 |
| COTTON        | 0.14         | 207.06         | 0.14              | 0.13          | 177.82         | 0.12              | 1.17         | 347.00         | 1.42              | -3.70                       | 2.06  | -1.72  | -16.26 | -15.55 | -29.28 | -8.51  | -16.32 | -23.44 |

Source: As in Table no 3.1

Among pulses, Kulthi and Biri are the most important one. In first period, 4.08% of GCA was under Kulthi with yield level 448 kgs/ha. But, in the final period, the area share was fallen to 4.37% along with the fall in yield level (362.35 kgs/ha). In case of Biri, 2.39% of GCA was under the crop with yield level 524 kgs/ha. In the final period, though there was an increase in area share (2.51%) but yield level has gone down to 356.15 kgs/ha. Arhar also occupies a significant place in the district. In the first period, 2.66% of GCA was under the crop with yield level 856.4 kgs/ha but in the final period, there was a significant fall both in area (2.58%) as well as yield level (496.20 kgs/ha).

Among oil seeds, Til is the most important one in the district. In the first period, 3.29% of GCA was under the crop with yield level 594.6 kgs/ha whereas in final period though area share was stagnant but the yield level has gone down to 338.45 kgs/ha. In case of Mustard, 1.46% of GCA was under the crop with yield level 547.4 kgs/ha but in the final period, there was a fall in both area share (1.29%) as well as yield level (335.6 kgs/ha). In case of groundnut, 0.40% of GCA with yield level 1042 kgs/ha was under the crop. In the final period, the area share has gone up to 1.50% but yield level has gone down to 1011.2 kgs/ha.

Among cash crops Sugarcane is the most important one. In first period, 0.69% of GCA with yield level 5261 kgs/ha was under the crop. In the final period, there was an increase in area share as well as yield level. The area share has gone up to 0.72% with yield level 605 kgs/ha. In case of Cotton, 0.14% of GCA was under the crop with yield level 207 kgs/ha during first period. In the final period area share has gone up to 1.17% with increased yield level (347 kgs/ha). In first period, 0.47% of GCA was under onion with yield level 8009.6 kgs/ha. In the final period, both area share (0.41%) as well as yield level (6002 kgs/ha) has gone down.

#### OBSERVATIONS

- (1) Like other district, Paddy is the principal crop of the district w.r.t area share and contribution to total output. Production of coarse cereals and area share under coarse cereal is higher in comparison to other districts
- (2) In comparison to first period, the area share has gone down for Wheat, Jawar, Ragi, mung, Gram, onion Sugarcane,

Jute and Cotton in second period. And in third period, the area share of Wheat, Biri, Mung Kulthi, Arhar, Gram, Til and Mustard has gone down in comparison with second period. There is a secular decline in area share of Wheat, mung and Gram.

- (3) As far yield level is concerned, in second period, except, paddy, maize, Ragi, Biri, Potato and Sugarcane, yield of all other crops have gone down in comparison with first period. And in third period, except Paddy and Cotton, the yield level of all other crops has gone down in comparison to second period. There is a secular decline in yield level of all crops except, Paddy, Maize, Ragi, Biri, Potato, and Sugarcane.
- (4) In first period, the area share of Paddy, Wheat, Biri, Mung, Kulthi, Mustard, Groundnut, Onion and Potato was less than the state average. And in third period, the area share of Paddy, Wheat, Biri, Til, Mustard, Groundnut, Onion and Potato was less than state average.
- (5) In case of yield, in first period, only the yield level of Biri, Groundnut and Sugarcane was less than state average. And in third period, except, Paddy, Maize, Jawar, Ragi and Cotton, the yield of all other crops was less than state average,
- (6) Amongst all periods, the performance of agriculture in first period was better than the other two periods.

## 2.8 MAYURBHANJ

With a total area of 26,961 sq.km, the district of Mayurbhanj forms the part of Northern region of the state. As per *Orissa development report (2001)*, the district ranks 12<sup>th</sup> in the infrastructural development index. The average size of land holding of the district is 1.70 ha as per latest report (1990). The 18 major crops covered 78.87% GCA in the first period which increased to 81.20% in the final period.

**Table No: 2.9**

**Crop-Wise Area, Production And Yield In Mayurbhanj District—1985-86 To 1999-00**

| NAME OF CROPS | FIRST PERIOD |                |                   | SECOND PERIOD |                |                   | THIRD PERIOD |                |                   | ANNUAL COMPOUND GROWTH RATE (%) |       |        |        |        |        |        |        |        |
|---------------|--------------|----------------|-------------------|---------------|----------------|-------------------|--------------|----------------|-------------------|---------------------------------|-------|--------|--------|--------|--------|--------|--------|--------|
|               | 85-90        |                |                   | 90-95         |                |                   | 95-00        |                |                   | 85-90                           |       |        | 90-95  |        |        | 95-00  |        |        |
|               | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA      | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | AREA                            | YIELD | OUTPUT | AREA   | YIELD  | OUTPUT | AREA   | YIELD  | OUTPUT |
| PADDY         | 59.93        | 1617.60        | 70.99             | 72.77         | 1842.40        | 74.27             | 66.97        | 1640.00        | 82.02             | 0.43                            | 1.91  | 2.36   | 0.78   | 5.62   | 6.45   | -0.91  | -0.26  | -1.18  |
| WHEAT         | 0.73         | 1837.70        | 1.46              | 0.38          | 1788.00        | 0.56              | 0.20         | 1383.00        | 0.30              | -10.39                          | -1.85 | -12.05 | -33.01 | -1.50  | -34.01 | 15.44  | -13.81 | -0.51  |
| MAIZE         | 1.98         | 963.20         | 1.39              | 2.48          | 991.60         | 1.35              | 2.14         | 997.80         | 1.58              | 0.46                            | 13.30 | 13.82  | -1.54  | 0.78   | -0.77  | -1.52  | 4.91   | 3.32   |
| JAWAR         | 0.21         | 924.00         | 0.12              | 0.20          | 833.00         | 0.08              | 0.13         | 566.40         | 0.05              | -5.91                           | 2.48  | -3.57  | -8.08  | -7.25  | -14.74 | -12.48 | -4.45  | -16.38 |
| RAGI          | 0.19         | 572.79         | 0.07              | 0.10          | 537.20         | 0.03              | 0.02         | 509.20         | 0.01              | -6.75                           | 18.01 | 10.05  | -30.69 | 0.87   | -30.09 | 1.97   | -9.50  | -7.72  |
| BIRI          | 3.64         | 599.20         | 5.21              | 3.95          | 575.40         | 4.11              | 2.50         | 394.80         | 2.47              | 2.43                            | 3.59  | 6.11   | -5.57  | -1.97  | -7.43  | -8.84  | -10.36 | -18.28 |
| MUNG          | 2.27         | 615.00         | 4.11              | 2.46          | 488.20         | 2.69              | 1.40         | 374.80         | 1.63              | 2.24                            | 7.94  | 10.35  | -4.97  | -5.03  | -9.75  | -5.81  | -8.29  | -13.62 |
| KULTHI        | 3.35         | 505.40         | 1.86              | 3.67          | 489.40         | 1.52              | 2.70         | 317.40         | 0.97              | 2.51                            | -4.72 | -2.32  | -3.61  | -8.53  | -11.83 | -4.34  | -10.35 | -14.24 |
| ARHAR         | 1.61         | 889.80         | 3.76              | 2.13          | 905.80         | 3.84              | 1.53         | 727.40         | 2.98              | -2.45                           | 5.40  | 2.82   | -3.38  | -2.55  | -5.85  | -1.88  | -4.52  | -6.31  |
| GRAM          | 0.99         | 689.60         | 1.54              | 1.02          | 672.80         | 1.17              | 0.42         | 613.40         | 0.60              | -0.52                           | -8.29 | -8.76  | -10.00 | -2.02  | -11.81 | -9.56  | -1.89  | -11.27 |
| TIL           | 1.20         | 509.60         | 1.49              | 1.59          | 447.20         | 1.30              | 1.01         | 392.40         | 1.01              | 6.22                            | 2.18  | 8.54   | -1.65  | 4.22   | 2.50   | -11.04 | -7.49  | -17.70 |
| MUSTARD       | 1.21         | 416.00         | 1.30              | 1.39          | 484.80         | 1.31              | 0.74         | 364.40         | 0.73              | -1.19                           | 14.13 | 12.77  | -8.58  | 0.65   | -7.99  | -4.41  | -15.49 | -19.22 |
| GROUNDNUT     | 0.90         | 1205.00        | 2.36              | 1.24          | 1419.40        | 2.84              | 0.86         | 1139.00        | 2.16              | 5.13                            | -0.14 | 4.99   | -12.65 | 6.59   | -6.90  | 3.94   | -3.07  | 0.75   |
| ONION         | 0.44         | 8259.80        | 3.52              | 0.61          | 7616.40        | 3.38              | 0.48         | 6794.80        | 3.11              | 1.59                            | -5.62 | -4.12  | -3.19  | -4.03  | -7.09  | -0.52  | 2.36   | 1.83   |
| POTATO        | 0.03         | 7919.20        | 0.12              | 0.03          | 8265.60        | 0.10              | 0.02         | 8577.00        | 0.09              | -2.36                           | 1.32  | -1.07  | -11.65 | 0.19   | -11.47 | 1.27   | -1.48  | -0.23  |
| SUGARCANE     | 0.05         | 5292.40        | 0.43              | 0.16          | 6318.00        | 1.32              | 0.02         | 5941.00        | 0.23              | 45.67                           | 4.41  | 52.09  | 14.13  | 12.07  | 27.90  | -30.94 | -4.84  | -34.28 |
| JUTE          | 0.12         | 1458.00        | 0.26              | 0.11          | 1160.64        | 0.14              | 0.06         | 710.00         | 0.06              | -9.56                           | -2.63 | -11.94 | -6.25  | -11.76 | -17.28 | -9.45  | -3.63  | -12.73 |
| COTTON        | 0.01         | 139.40         | 0.01              | 0.00          | 0.00           | 0.00              | 0.00         | 0.00           | 0.00              | -9.56                           | -2.63 | -11.94 | -6.25  | -11.76 | -17.28 | -9.45  | -3.63  | -12.73 |

Source: As in Table No 3.1

Like other districts Paddy is the principal crop of the district as more than 50% of GCA was under the crop in all the periods. In first period, 59.93% of GCA was under Paddy with yield level 1617 kgs/ha. In the final period the area share (66.97%) has increased along with yield level (164 kgs/ha). Maize is the second important cereal. In first period, 1.98% of GCA was under the crop with yield level 963.2 kgs/ha. In the final period, there was an increase in area share (2.14%) along with yield level (997.8 kgs/ha). In first period 0.72% of GCA was under Wheat with yield level 1837.7 kgs/ha. In the final period, there was a decline in area share (0.20%) as well as yield level (1383 kgs/ha).

Among the pulses, Biri is the most important one. In first period, 3.64% of GCA was under the crop with yield level 599.2 kgs/ha. In the final period, the area share has gone down to 2.54% along with yield level (394.8 kgs/ha). Kulthi is the second important pulse of the district. In the first period, 3.35% of GCA was under the crop with yield level 505.4 kgs/ha. But, in the final period, the area share (2.70%) as well as yield level (317.4 kgs/ha) has gone down. In case of mung during first period, 2.27% of GCA was under the crop along with yield level 615 kgs/ha. Like other pulses, in third period, the area share (1.40% of GCA) as well as yield level (374.8 kgs/ha) has gone down. In case of Arhar also in third period, area share has gone down along with yield level in comparison to first period.

Among oilseeds, the area share of Til in first period was 1.20% along with yield level 509.6 kgs/ha. In the final period, the area share (1.01%) has gone down along with yield level (392 kgs/ha). In case of Mustard, 1.21% of GCA was under the crop in first period along with yield level 416 kgs/ha. But in the final period, there was a fall in area share (0.74%) along with yield level (364.4 kgs/ha). Groundnut's area share in first period was 0.9% with its yield level 1205 kgs/ha. But, in the final period, the area share has gone down to 0.86% along with its yield level (1139.00 kgs/ha).

Among cash crops, onion is the important one. In first period, 0.44% of GCA was under the crop with yield level 8259.8 kgs/ha. In the final period though area share (0.98%) has gone up but yield level (6794.00 kgs/ha) has gone down. In case of Jute, 0.12% of GCA was under the crop in first period with yield level 1458 kgs/ha. But in the final period, the area share has gone down to 0.06% with a fall in yield level (710 kgs/ha). Sugarcane covered

0.05% of GCA during the first period with its yield level 5292.4 kgs/ha. In the final period, though area share (0.02%) has gone down but yield level has increased to 5,945 kgs/ha. Potato covered less than 0.05% of GCA in all the periods.

#### OBSERVATIONS

- (1) Like other district, Paddy is the principal crop of the district w.r.t area share and contribution to total output.
- (2) In comparison to first period, the area share has gone down for Wheat, Jawar, Ragi and Jute in second period. In third period, the area share of all crops has gone down in comparison to second period. There is a secular decline in area share of Wheat, Jawar, Ragi and Jute through out the period.
- (3) In case of yield, in second period, except, Paddy, Maize, Arhar, Mustard, Groundnut, Potato and Sugarcane, the yield level of all other crops are less than first period. In third period, except, Maize, Potato, the yield of all other crops was less than second period.
- (4) In first period, except, Paddy, Wheat, maize, Arhar, Gram, the area share of all other crops was less than state average. And in third period, except Paddy, the area share of all other crops was less than state average.
- (5) In case of yield, in first period, the yield, level of paddy, Maize, Ragi, Til, Mustard, Potato and Sugarcane was less than state average. In third period, except, Paddy, Maize, Arhar, the yield level of all other crops was less than state average.
- (6) The performance of Agriculture in the district was better during first period in comparison to other two periods.

## 2.10 PHULBANI

With a total area of 11,119 Sq.km, the district of Phulbani, forms the part of Central region with more hilly and plateau areas. As per *Orissa development report (2001)*, Phulabani ranks 9<sup>th</sup> in the infrastructural development index. The average size of land holding is 1.38 ha as per the latest report (1990). The 18 major crops covered 71.06% of GCA in the first period, which has increased to 75.54% of GCA in the final period.

**Table No: 2.10**  
**Crop-Wise Area, Production And Yield In Phulbani District—1985-86 To 1999-00**

| NAME OF CROPS | FIRST PERIOD |                |                   | SECOND PERIOD |                |                   | THIRD PERIOD |                |                   | ANNUAL COMPOUND GROWTH RATE |        |        |        |        |        |        |       |        |
|---------------|--------------|----------------|-------------------|---------------|----------------|-------------------|--------------|----------------|-------------------|-----------------------------|--------|--------|--------|--------|--------|--------|-------|--------|
|               | 85-90        |                |                   | 90-95         |                |                   | 95-00        |                |                   | 85-90                       |        |        | 90-95  |        |        | 95-00  |       |        |
|               | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA      | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | AREA                        | YIELD  | OUTPUT | AREA   | YIELD  | OUTPUT | AREA   | YIELD | OUTPUT |
| PADDY         | 30.28        | 1719.20        | 47.18             | 32.86         | 1952.40        | 57.08             | 40.61        | 1813.30        | 61.41             | 0.32                        | -2.21  | -1.90  | 1.56   | 1.47   | 3.05   | 1.43   | 9.77  | 11.35  |
| WHEAT         | 0.24         | 1052.20        | 0.32              | 0.15          | 1546.00        | 0.30              | 0.05         | 1367.60        | 0.08              | -11.65                      | 8.45   | -4.19  | -31.36 | -2.87  | -33.33 | 1.18   | -1.94 | -0.78  |
| MAIZE         | 5.88         | 1130.80        | 5.80              | 6.10          | 1111.60        | 5.95              | 6.41         | 1329.90        | 6.97              | 4.08                        | -6.42  | -2.59  | -0.20  | 12.09  | 11.87  | 1.14   | 6.07  | 7.28   |
| JAWAR         | 0.39         | 909.40         | 0.27              | 0.22          | 668.20         | 0.14              | 0.27         | 262.80         | 0.05              | -4.36                       | -0.65  | -4.98  | -8.91  | -2.47  | -11.15 | -2.10  | 20.71 | 18.18  |
| RAGI          | 2.19         | 626.09         | 1.23              | 1.17          | 469.00         | 0.45              | 1.11         | 568.90         | 0.50              | -17.57                      | -2.69  | -19.79 | -7.15  | 24.44  | 15.54  | 1.53   | 1.00  | 2.54   |
| BIRI          | 4.30         | 374.60         | 4.65              | 3.37          | 303.60         | 2.88              | 3.21         | 350.80         | 3.13              | -3.15                       | 2.70   | -0.54  | -5.05  | 25.06  | 18.74  | 1.70   | 3.39  | 5.15   |
| MUNG          | 5.02         | 400.00         | 7.10              | 4.30          | 346.40         | 5.30              | 4.12         | 326.90         | 4.60              | -6.43                       | 13.22  | 5.94   | -2.26  | 18.86  | 16.17  | 5.41   | 8.19  | 14.04  |
| KULTHI        | 8.01         | 497.20         | 5.30              | 6.84          | 352.20         | 3.24              | 6.63         | 264.30         | 2.00              | -0.04                       | -7.74  | -7.78  | -0.85  | 26.99  | 25.92  | -10.23 | 19.58 | 7.34   |
| ARHAR         | 3.93         | 709.00         | 8.78              | 3.45          | 643.40         | 7.00              | 3.25         | 781.60         | 7.41              | 2.81                        | -0.30  | 2.50   | -5.64  | 6.32   | 0.32   | 7.00   | -6.14 | 0.42   |
| GRAM          | 0.11         | 598.40         | 0.18              | 0.14          | 604.00         | 0.23              | 0.08         | 262.90         | 0.07              | 14.92                       | 3.60   | 19.05  | -14.46 | -12.34 | -25.02 | 6.14   | 1.83  | 8.09   |
| TIL           | 3.51         | 510.00         | 5.14              | 3.17          | 216.40         | 1.97              | 2.25         | 317.30         | 2.06              | -0.21                       | -9.12  | -9.31  | -0.31  | 25.96  | 25.57  | 12.64  | 2.10  | 15.01  |
| MUSTARD       | 5.60         | 321.60         | 5.60              | 7.25          | 356.20         | 8.01              | 5.87         | 298.40         | 5.22              | -2.40                       | -7.16  | -9.39  | 5.61   | -8.25  | -3.10  | -12.13 | -6.10 | -17.49 |
| GROUNDNUT     | 0.84         | 1082.00        | 2.36              | 1.05          | 1069.20        | 2.98              | 0.90         | 1092.50        | 2.43              | 3.87                        | 9.62   | 13.86  | -1.52  | 8.09   | 6.45   | -2.45  | 9.25  | 6.58   |
| ONION         | 0.35         | 4412.00        | 1.75              | 0.29          | 6160.20        | 2.06              | 0.34         | 5095.50        | 1.92              | -13.09                      | 8.66   | -5.56  | -0.61  | -1.27  | -1.87  | -3.76  | 10.99 | 6.81   |
| POTATO        | 0.13         | 5930.80        | 0.53              | 0.15          | 6659.20        | 0.67              | 0.20         | 6591.20        | 0.86              | -5.24                       | -7.48  | -12.33 | 7.62   | 0.36   | 8.01   | 0.51   | -0.66 | -0.16  |
| SUGARCANE     | 0.28         | 6527.80        | 3.80              | 0.14          | 5376.00        | 1.71              | 0.16         | 4402.00        | 1.28              | 10.66                       | -0.02  | 10.65  | -35.04 | -6.45  | -39.23 | 3.33   | 1.19  | 4.56   |
| JUTE          | 0.00         | 379.80         | 0.00              | 0.00          | 0.00           | 0.00              | 0.00         | 0.00           | 0.00              | -29.29                      | -25.57 | -47.37 | N.C    | N.C    | N.C    | N.C    | N.C   | N.C    |
| COTTON        | 0.01         | 138.04         | 0.01              | 0.01          | 183.60         | 0.01              | 0.07         | 81.90          | 0.02              | -29.29                      | -25.57 | -47.37 | -      | -      | -      | -      | -     | -      |

Source: As in Table no 3.1

During first period, 30.28% of GCA was under Paddy with yield level 1719 kgs/ha. In the final period, the area share has gone up to 40.61% with yield level 1813 kgs/ha. Maize is the second important cereal of the district. In first period, 5.88% of GCA was under the crop with yield level 1130 kgs/ha. In the final period, the area share (6.4%) has gone up along with yield level (1329 kgs/ha). Ragi occupied 2.19% of GCA in the first period with yield level 626 kgs/ha. During the final period, there was a fall in area share (1.11/%) along with yield level (568.9 kgs/ha). In first period, Jawar occupied 0.39% of GCA in first period with yield level 909.4 kgs/ha. In the final period, there is a fall in area share (0.27%) along with yield level (262.8 kgs/ha).

Among pulses, Kulthi occupies important place in the district. In first period, 8.01% of GCA was under the crop with yield level 497.2 kgs/ha. In the final period, there was a fall in area share (6.63%) along with the yield level (264.3 kgs/ha). Mung occupies second place w.r.t area share. In first period, 5.02% of GCA was under the crop with yield level 400 kgs/ha. During the final period, there was a fall in area share (4.12%) along with yield level (326.9 kgs/ha). In case of Biri, during first period, 4.30% of GCA was under the crop with yield level 374.6 kgs/ha. But, in the final period, there was a fall in area share (3.21%) along with yield level (350.8 kgs/ha).

Among oil seeds, mustard is the most important one. In first period, 5.60% of GCA was under the crop, with yield level 321.6 kgs/ha. In the final period, though there is an increase in area share (5.87%) but yield level has gone down to 298.5 kgs/ha. In case of Til 3.51% of GCA was under the crop during first period with yield level 510 kgs/ha. In final period, there was a fall in area share (2.25%) with a fall in yield level (317.3%). In case of Groundnut, 0.84% of GCA was under the crop with yield level 1082 kgs/ha. In final period there was an increase in area share (0.9%) along with its yield level (1092 kgs/ha).

Among cash crops, onion is the most important one. During first period, 0.35% of GCA was under the crop with yield level 4,412 kgs/ha. In the final period, with 0.34% of GCA, the yield level has gone up to 5095 kgs/ha. In case of Sugarcane, 0.28% of GCA was under the crop with yield level 6527 kgs/ha. In the final period, the area share (0.16%) has gone down along with the yield level (4402 kgs/ha). For potato, there was an increase in area share (0.20%) along with yield level (6591 kgs/ha) in final period comparing with first period.

## OBSERVATIONS

- (1) Like other districts, *Paddy* is the principal crop of the districts w.r.t. Area share and contribution to output.
- (2) In second period, except the area share of paddy, Maize, Gram Mustard, Groundnut and Potato, the area share of all other crops has gone down in comparison with first period. In third period, except, the area share of Paddy, Maize, Jawar, Onion, potato, and Sugarcane, the area share of all other crops has gone down. There is a secular decline in area share of Wheat, Ragi, Biri, mung, Kulthi, Arhar, and Oil in all the periods.
- (3) In case of yield, in second period, the yield level of all crops except, Paddy, Wheat, gram, Mustard, Onion and Potato has gone down in comparing with first period. During third period, except, Maize, Ragi, Biri, Arhar, Oil and Groundnut, the yield of all other crops has gone down in comparing with second period. There is a secular decline in yield level of Jawar, mung, Kulthi and Sugarcane in all periods.
- (4) In first period, except, Maize, Jawar, Kulthi, Arhar, Til, Mustard, Potato, and Sugarcane, the area share of all other crops was less than state average. In third period, except, Maize, Jawar, Kulthi, Arhar, Mustard, and Potato, the Area share of all other crops are less than state average.
- (5) In case of yield, except, Paddy, maize, Jawar, Ragi and Sugarcane, the yield level of all other crops are less than state average during first period. In final period, except, Paddy, Maize, Arhar, the yield level of all other crops are less than state average.
- (6) The performance of the district in first period is better than the other periods on the basis of yield levels.

## 2.11 PURI

With a total area of 10,182 sq. km, the district of Puri forms the part of coastal region in the eastern side of state. As per *Orissa development report (2001)*, the district ranks first in the infrastructural development index. The average size of land holding of the district is 1.01 ha as per latest report (1990). The 18 major crops covered 84.39% of GCA in first period, which increased to 86.82% in the final period.

**Table No: 2.11**  
**Crop-Wise Area, Production And Yield In Puri District—1985-86 To 1999-00**

| NAME OF CROPS | FIRST PERIOD |                |                   | SECOND PERIOD |                |                   | THIRD PERIOD |                |                   | ANNUAL COMPOUND GROWTH RATE |        |        |        |       |        |        |        |        |
|---------------|--------------|----------------|-------------------|---------------|----------------|-------------------|--------------|----------------|-------------------|-----------------------------|--------|--------|--------|-------|--------|--------|--------|--------|
|               | 85-90        |                |                   | 90-95         |                |                   | 95-00        |                |                   | 85-90                       |        |        | 90-95  |       |        | 95-00  |        |        |
|               | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA      | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | AREA                        | YIELD  | OUTPUT | AREA   | YIELD | OUTPUT | AREA   | YIELD  | OUTPUT |
| PADDY         | 49.41        | 2053.20        | 56.83             | 53.67         | 2186.80        | 62.11             | 56.35        | 1878.87        | 62.17             | -0.09                       | 8.65   | 8.55   | 0.27   | 2.62  | 2.90   | 1.15   | 4.00   | 5.19   |
| WHEAT         | 0.18         | 1549.10        | 0.23              | 0.09          | 1576.60        | 0.11              | 0.06         | 1371.53        | 0.07              | -20.39                      | 0.43   | -20.05 | -9.60  | -1.22 | -10.70 | 0.85   | 4.24   | 5.13   |
| MAIZE         | 0.65         | 836.80         | 0.30              | 0.73          | 944.00         | 0.36              | 0.76         | 951.53         | 0.43              | 3.90                        | -0.09  | 3.81   | 2.58   | 0.69  | 3.29   | 0.42   | -4.54  | -4.14  |
| JAWAR         | 0.06         | 902.00         | 0.03              | 0.03          | 594.00         | 0.01              | 0.03         | 398.00         | 0.01              | -36.42                      | -2.14  | -37.78 | 19.83  | -5.76 | 12.93  | -4.36  | -0.30  | -3.10  |
| RAGI          | 1.78         | 673.18         | 0.67              | 0.77          | 597.40         | 0.23              | 0.42         | 663.40         | 0.16              | -11.45                      | -1.23  | -12.54 | -14.57 | -1.58 | -15.92 | 7.77   | -2.06  | 5.56   |
| BIRI          | 7.95         | 504.40         | 7.55              | 6.88          | 525.60         | 6.18              | 6.54         | 412.67         | 5.17              | -6.35                       | -26.61 | -31.27 | -0.75  | 6.71  | 5.91   | 3.01   | 7.79   | 11.04  |
| MUNG          | 11.23        | 482.00         | 12.59             | 10.90         | 483.20         | 11.15             | 11.42        | 383.87         | 10.43             | -7.35                       | -30.86 | -35.94 | 2.23   | 6.17  | 8.53   | 11.62  | 6.08   | 18.41  |
| KULTHI        | 5.83         | 445.00         | 2.17              | 5.45          | 510.80         | 2.20              | 4.97         | 471.93         | 2.10              | 6.96                        | -12.43 | -6.33  | -1.25  | 5.75  | 4.42   | 6.29   | 1.61   | 7.99   |
| ARHAR         | 0.35         | 805.20         | 0.57              | 0.35          | 839.60         | 0.55              | 0.24         | 624.53         | 0.34              | 4.93                        | 1.39   | 6.40   | 1.66   | -0.43 | 1.23   | 18.23  | -0.54  | 17.59  |
| GRAM          | 0.02         | 409.60         | 0.02              | 0.01          | 524.00         | 0.01              | 0.02         | 448.20         | 0.02              | -34.62                      | -3.25  | -36.75 | 49.56  | 3.40  | 54.64  | 18.84  | 0.38   | 19.29  |
| TIL           | 2.10         | 471.40         | 1.84              | 1.60          | 440.00         | 1.22              | 1.43         | 420.13         | 1.21              | -0.54                       | -10.29 | -10.78 | 1.48   | 8.00  | 9.60   | 7.34   | 5.68   | 13.44  |
| MUSTARD       | 0.86         | 399.80         | 0.69              | 0.78          | 476.40         | 0.68              | 0.68         | 370.13         | 0.55              | -5.14                       | -11.72 | -16.26 | -1.32  | 3.49  | 2.12   | -5.67  | -10.73 | -15.78 |
| GROUNDNUT     | 2.52         | 1262.20        | 5.41              | 2.41          | 1556.00        | 5.77              | 2.55         | 1297.67        | 5.88              | -19.99                      | -8.37  | -26.69 | 6.03   | 6.53  | 12.95  | 1.35   | 9.26   | 10.74  |
| ONION         | 0.26         | 6671.60        | 1.25              | 0.27          | 7522.60        | 1.42              | 0.29         | 5699.87        | 1.29              | 8.10                        | -8.30  | -0.87  | 1.19   | 2.91  | 4.14   | -1.66  | -10.88 | -12.36 |
| POTATO        | 0.18         | 10895.80       | 0.85              | 0.20          | 10713.00       | 0.89              | 0.14         | 10224.27       | 0.65              | 7.63                        | -0.51  | 7.08   | -1.67  | 5.35  | 3.59   | 3.83   | 0.57   | 4.43   |
| SUGARCANE     | 0.93         | 7342.80        | 8.92              | 0.72          | 7923.93        | 7.08              | 0.88         | 7763.73        | 9.52              | -10.34                      | 1.15   | -9.31  | -4.31  | 0.33  | -3.99  | -10.09 | -0.31  | -10.36 |
| JUTE          | 0.06         | 1143.36        | 0.07              | 0.02          | 1454.76        | 0.03              | 0.02         | 616.72         | 0.02              | -12.31                      | -9.05  | -20.24 | 45.40  | 1.80  | 48.02  | -7.88  | 8.00   | -0.50  |
| COTTON        | 0.00         | 122.06         | 0.00              | 0.00          | 68.00          | 0.00              | 0.01         | 28.67          | 0.00              | -12.31                      | -9.05  | -20.24 | 45.40  | 1.80  | 48.02  | -7.88  | 8.00   | -0.50  |

Source: As in Table no 3.1

Paddy is the principal crop of the district. During first period, 49.41% of GCA was under the crop with yield level 2053 kgs/ha. In the final period, the area share (56.35%) has gone up but the yield level (1878 kgs/ha) has gone down. Ragi is the second important crop with area share 1.78% and yield level 673.18 kgs/ha in first period. During the final period, the area share (0.42%) as well as yield level (663.4 kgs/ha) has gone down. In case of Maize, 0.65% of GCA was under the crop with yield level 836.8 kgs/ha during first period. In the final period, the area share (0.76%) as well as yield level (951 kgs/ha) has gone up.

Among pulses, mung is the most important one. During first period 11.23 % of GCA was under the crop with yield level 482 kgs/ha .In the final period, the area share (11.42 %) has gone up but yield level (383.8 kgs/ha) has gone down. In case of Biri, 7.95% of GCA was under the crop with yield level 504 kgs/ha in first period. But, during the final period, the area share (6.54%) as well as yield level (412.67 kgs/h) has gone down. In case of Kulthi, 5.83% of GCA was under the crop with yield level 445 kgs/ha in first period. During the final period, though the area share has gone down but the yield level (4.97%) has gone up (471.93 kgs/ha).

Among oil seeds, Groundnut is the most important one. In first period 2.52% of GCA was under the crop with yield level 1262 kgs/ha. In the final period, the area share (2.55%) as well as yield level (1297.6 kgs/ha) has gone up. In case of Til, 2.10% of GCA was under the crop with yield level 421.9 kgs/ha during first period. In the final period, the area share (1.43%) as well as yield level (420 kgs/ha) has gone down. In case of Mustard the area share (0.68%) as well as yield level (370 kgs/ha) has gone down in third period in comparison with first period.

Among cash crops, the area coverage of Sugarcane was very high. In first period, 0.93% of GCA was under the crop with yield level 7342 kgs/ha. In the final period, though the Area share (0.8%) has gone down but the yield level has gone up (7763.7 kgs/ha). In case of Onion 0.26% of GCA was under the crop with yield level 6671 kgs/ha in first period. During final period, the area share has gone up to 0.29% but the yield level has gone down to 5699 kgs/ha.

In case of potato, 0.18% of GCA was under the crop with yield level 10,895 kgs/ha but in the final period the area share (0.14%) as well as yield level (10,224.27 kgs/ha) has gone down in comparison with first period.

#### OBSERVATIONS

- (1) Like most of the districts, Paddy is the principal crop of the district w.r.t. Area coverage as well as contribution to total output.
- (2) In second period, except the area share of Paddy, Onion and Potato, share of all other crops has gone down in comparison with first period. In third period, except paddy, maize, mung, Gram, Groundnut, Onion and Sugarcane, the area share of all other crops has gone down in comparison with second period. There is secular decline in area share of Wheat, Jawar, Ragi, Biri, Kulthi, Arhar and Mustard.
- (3) In comparison with first period, the yield level of Jawar, Ragi, Til, Potato and Cotton, has gone down in second period. In third period, the yield level of all crops except Maize has gone down in comparison to second period.
- (4) In first period, except the area share of Paddy, Biri, Mung, Kulthi, Potato and Sugarcane, area share of all other crops was less than state average. In final period, except, Paddy, Biri, Mung, Kulthi, Potato and Sugarcane, area share of all other crops was less than the state average.
- (5) Similarly in first period, except the yield level of Paddy, Jawar, Ragi, Arhar, Groundnut, Potato and Onion, the yield level of all other crops was less than state average. In the final period, except, Paddy, Ragi, Kulthi, Til, Groundnut, Potato, Sugarcane and Jute, the yield level of all other crops was less than the state average. The performance of agriculture in the district was better in second period than the other two periods as far as yield level of crops are concerned.

## 2.12 SAMBALPUR

With a total area of 17,516 sq. km, the district of Sambalpur forms the part of northwestern region of the state. As per *Orissa development report (2001)*, the district ranks 4<sup>th</sup> in the infrastructural development index. The average size of land holding in the district was 1.71 h as per latest report (1990). The 18 major crops covered 84.02% of GCA in first period, which has gone up to 88.8% in the final period.

**Table No: 2.12**  
**Crop-Wise Area, Production And Yield In Sambalpur District—1985-86 To 1999-00**

| NAME OF CROPS | FIRST PERIOD |                |                   | SECOND PERIOD |                |                   | THIRD PERIOD |                |                   | ANNUAL COMPOUND GROWTH RATE(%) |       |        |        |        |        |        |        |        |
|---------------|--------------|----------------|-------------------|---------------|----------------|-------------------|--------------|----------------|-------------------|--------------------------------|-------|--------|--------|--------|--------|--------|--------|--------|
|               | 85-90        |                |                   | 90-95         |                |                   | 95-00        |                |                   | 85-90                          |       |        | 90-95  |        |        | 95-00  |        |        |
|               | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA      | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | AREA                           | YIELD | OUTPUT | AREA   | YIELD  | OUTPUT | AREA   | YIELD  | OUTPUT |
| PADDY         | 58.41        | 1805.00        | 61.81             | 57.72         | 2447.20        | 65.67             | 63.14        | 2191.55        | 68.07             | -0.58                          | 4.91  | 4.30   | 0.02   | 2.40   | 2.42   | -0.45  | 1.70   | 1.24   |
| WHEAT         | 0.69         | 1666.10        | 0.99              | 0.36          | 1814.60        | 0.45              | 0.30         | 1687.90        | 0.37              | -13.23                         | -1.54 | -14.56 | -9.02  | 2.06   | -7.14  | -4.23  | -4.42  | -8.46  |
| MAIZE         | 0.38         | 1101.20        | 0.24              | 0.41          | 1133.00        | 0.21              | 0.39         | 1528.90        | 0.29              | 3.84                           | 9.74  | 13.96  | -1.47  | -3.67  | -5.08  | -0.37  | -0.21  | -0.57  |
| JAWAR         | 0.10         | 809.80         | 0.04              | 0.06          | 725.80         | 0.02              | 0.05         | 530.00         | 0.01              | -2.90                          | -3.55 | -6.35  | 0.93   | -8.99  | -8.15  | -3.79  | -14.76 | -17.99 |
| RAGI          | 0.18         | 710.22         | 0.07              | 0.07          | 892.60         | 0.03              | 0.04         | 801.41         | 0.00              | -4.98                          | 6.94  | 1.62   | -22.29 | -0.87  | -22.96 | -6.16  | -10.58 | -16.08 |
| BIRI          | 4.06         | 559.20         | 4.36              | 4.97          | 585.20         | 4.40              | 4.78         | 538.75         | 4.19              | 4.49                           | 5.91  | 10.66  | 2.71   | -0.90  | 1.79   | -8.32  | -10.01 | -17.49 |
| MUNG          | 5.61         | 501.80         | 6.66              | 6.23          | 507.60         | 5.91              | 5.71         | 536.45         | 6.07              | 2.42                           | 11.62 | 14.32  | 1.13   | 3.55   | 4.72   | -2.90  | -3.63  | -6.42  |
| KULTHI        | 2.81         | 555.80         | 1.38              | 2.09          | 575.20         | 0.85              | 1.45         | 341.95         | 0.46              | -3.68                          | -3.28 | -6.84  | -1.88  | -11.58 | -13.25 | -25.24 | -4.01  | -28.23 |
| ARHAR         | 0.39         | 628.60         | 0.53              | 0.56          | 784.40         | 0.72              | 0.42         | 760.25         | 0.55              | 2.29                           | -1.61 | 0.64   | -3.09  | 8.42   | 5.07   | -1.54  | -12.92 | -14.26 |
| GRAM          | 0.22         | 645.00         | 0.25              | 0.15          | 656.60         | 0.15              | 0.14         | 535.75         | 0.11              | 9.62                           | 4.96  | 15.05  | -7.67  | -5.68  | -12.91 | 1.54   | -7.27  | -5.84  |
| TIL           | 3.63         | 603.60         | 4.24              | 4.66          | 551.20         | 3.87              | 5.01         | 483.71         | 4.01              | -0.24                          | 5.64  | 5.38   | 9.77   | -4.76  | 4.54   | -7.35  | -7.20  | -14.03 |
| MUSTARD       | 1.23         | 525.40         | 1.35              | 1.69          | 564.00         | 1.55              | 1.49         | 537.45         | 1.38              | 7.68                           | 3.70  | 11.67  | 3.05   | -1.64  | 1.36   | -3.37  | -7.02  | -10.16 |
| GROUNDNUT     | 5.27         | 1217.00        | 11.14             | 6.00          | 1376.60        | 11.35             | 4.86         | 1267.15        | 8.98              | 7.04                           | -4.02 | 2.74   | -5.39  | 0.57   | -4.85  | -9.17  | -1.65  | -10.67 |
| ONION         | 0.50         | 6795.60        | 2.61              | 0.51          | 8748.00        | 2.75              | 0.56         | 6720.75        | 2.60              | -0.21                          | -2.12 | -2.32  | 4.73   | 4.70   | 9.66   | -6.30  | -21.74 | -26.67 |
| POTATO        | 0.12         | 8031.20        | 0.45              | 0.12          | 8840.80        | 0.39              | 0.12         | 9256.60        | 0.43              | 2.73                           | 0.76  | 3.51   | 2.21   | 1.92   | 4.16   | -4.23  | 2.32   | -2.02  |
| SUGARCANE     | 0.41         | 6872.40        | 3.88              | 0.24          | 6140.30        | 1.67              | 0.35         | 6204.65        | 2.47              | -15.04                         | 2.50  | -12.92 | -2.13  | -6.93  | -8.91  | -22.84 | 4.09   | -19.69 |
| JUTE          | 0.00         | 0.00           | 0.00              | 0.00          | 0.00           | 0.00              | 0.00         | 0.00           | 0.00              | N.C                            | N.C   | N.C    | N.C    | N.C    | N.C    | N.C    | N.C    | N.C    |
| COTTON        | 0.01         | 159.12         | 0.00              | 0.00          | 0.00           | 0.00              | 0.00         | 0.00           | 0.00              | -                              | -     | -      | N.C    | N.C    | N.C    | N.C    | N.C    | N.C    |

Source: As in Table no 3.1

Paddy is the principal crop of the district. In first period, 58.41% of GCA was under the crop with yield level 1,805 kgs/ha. In the final period, the area share (63.14%) as well as yield level has gone up. Wheat occupies second largest place in the district. In first period, 0.69% of GCA was under the crop with yield level 1666.10 kgs/ha. In the final period, though the area share (0.30%) has gone down but yield level has gone up to 1687.9 kgs/ha. In case of Maize, 0.38% of GCA was under the crop with yield level 1101.2 kgs/ha during first period. In final period, the area share (0.39%) as well as yield level (1528 kgs/ha) has gone up. The area share of Jawar and Ragi, which was 0.28% in the first period, has gone down to 0.09% of GCA in the final period.

Among pulses, mung is the most important one. In first period, 5.61 % of GCA was under the crop with yield level 501.8 kgs/ha. During the final period, the area share (5.71%) as well as yield level (536.4 kgs/ha) has gone up. In case of Biri, 4.06% of GCA was under the crop with yield level 559.2 kgs/ha during first period. But, in the final period, the area share (4.78%) as well as yield level (538.7 kgs/ha) has gone down. In case of Kulthi, 2.81% of GCA was under the crop with yield level 555.8 kgs/ha in first period. But, in the final period, the area share (1.45%) as well as yield level (341.9 kgs/ha) has gone down. Arhar and Gram together occupied 0.61% of GCA in the first period, which came down to 0.54% in the final period.

Among oilseeds, Groundnut is the most important one. In first period, 5.27% of GCA was under the crop with yield level 1217 kgs/ha. In the final period, the area share has come down to 4.86% but the yield level has gone up to 1267.15 kgs/ha. Til occupied 3.63% of GCA with yield level 603 kgs/ha during first period. But, in the final period, though the area share has gone up to 5.01%, the yield level has gone down to 483.7 kgs/ha. In case of Mustard, 1.23% of GCA was under the crop with yield level 524.4 kgs/ha during the first period. But, in the final period, the area share (1.49%) as well as yield level (537.4 kgs/ha) has gone up.

Among cash crops, onion gets the top priority in the district. In first period, 0.5% of GCA was under the crop with yield level 6,795 kgs/ha. But, in the final period, though the area share (0.56%) has gone up, but the yield level (6,720 kgs/ha) has come down. In case of Sugarcane, 0.41% of GCA was under the crop with yield level 6872 kgs/ha in the first period. But, in the final period,

the area share (0.35%) as well as yield level (6,204 kgs/ha) has gone down. In case of Potato, 0.12% of GCA was under the crop with yield level 8,031 kgs/ha in first period. In the final period, though area share was constant yield level has gone up to 9,256 kgs/ha

#### OBSERVATIONS

- (1) Like other district, Paddy is the principal crop of the districts.
- (2) In second period, except maize, Biri, Mung, Arhar, Til, Mustard and Groundnut, the area share of all other crops was less than first period. During third period, except Maize, Biri, Potato and Onion, area share of all other crops was less than second period.
- (3) In case of yield, the yield of Jawar, Til and Sugarcane in first period was less than first period. In third period, except, Maize, mung, potato and Sugarcane the yield of all other crops was less than second period.
- (4) In first period, except, Paddy, Wheat, Til, Groundnut, onion, Potato and Sugarcane, the area share of all other crops was less than state average. In third period, the area share of maize, Jawar, Ragi, Biri, Mung, Kulthi, Arhar and Gram was less than state average.
- (5) In first period, the yield level of mung, Arhar and Potato was less than state average whereas in third period, the yield level of Kulthi, and sugarcane was less than state average.
- (6) In general, the performance of agriculture in second period was better than the other two periods.

## 2.13 SUNDARGARH

With a total area of 9,712 sq km, the district of Sundargarh forms the part of hilly region in the northern side of the state. As per *Orissa development report (2001)*, the district ranks 7<sup>th</sup> in the infrastructural development index. The average size of holding is 1.77 ha as per latest report (1990). The 18 major crops covered 79.39% of GCA in first period, which has gone up 83.33% in final period.

**Table No: 2.13**  
**Crop-Wise Area, Production And Yield In Sundargarh District—1985-86 To 1999-00**

| NAME OF CROPS | FIRST PERIOD |                |                   | SECOND PERIOD |                |                   | THIRD PERIOD |                |                   | ANNUAL COMPOUND GROWTH RATE |        |        |       |       |        |        |        |        |
|---------------|--------------|----------------|-------------------|---------------|----------------|-------------------|--------------|----------------|-------------------|-----------------------------|--------|--------|-------|-------|--------|--------|--------|--------|
|               | 85-90        |                |                   | 90-95         |                |                   | 95-00        |                |                   | 85-90                       |        |        | 90-95 |       |        | 95-00  |        |        |
|               | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA      | YIELD (KGS/HA) | % TO TOTAL OUTPUT | % TO GCA     | YIELD (KGS/HA) | % TO TOTAL OUTPUT | AREA                        | YIELD  | OUTPUT | AREA  | YIELD | OUTPUT | AREA   | YIELD  | OUTPUT |
| PADDY         | 54.07        | 1196.00        | 57.16             | 52.68         | 1435.40        | 60.85             | 57.61        | 1382.20        | 62.61             | -0.07                       | -0.14  | -0.21  | -0.12 | 1.13  | 1.01   | 0.50   | 1.15   | 1.65   |
| WHEAT         | 1.48         | 1673.30        | 3.18              | 0.76          | 1806.09        | 1.62              | 0.58         | 1580.80        | 1.11              | -13.93                      | 5.14   | -9.51  | -3.33 | 1.86  | -1.52  | -6.49  | -4.55  | -10.74 |
| MAIZE         | 1.48         | 852.20         | 1.12              | 1.80          | 1180.00        | 1.64              | 1.69         | 1595.80        | 2.13              | 8.42                        | 7.72   | 16.79  | -7.92 | 2.27  | -5.83  | 5.30   | 6.37   | 12.00  |
| JAWAR         | 0.57         | 608.40         | 0.26              | 0.43          | 796.80         | 0.24              | 0.23         | 816.80         | 0.12              | 0.00                        | -1.05  | -1.05  | -8.04 | -1.51 | -9.42  | -1.89  | -6.13  | -7.91  |
| RAGI          | 0.34         | 500.76         | 0.14              | 0.34          | 842.40         | 0.22              | 0.28         | 785.20         | 0.16              | 13.53                       | 1.16   | 14.85  | -6.81 | 2.50  | -4.48  | 9.47   | -10.85 | -2.41  |
| BIRI          | 4.36         | 533.00         | 6.67              | 4.55          | 603.20         | 7.21              | 4.88         | 518.40         | 6.54              | 0.05                        | 6.70   | 6.76   | 2.09  | -1.64 | 0.42   | -3.87  | -7.38  | -10.97 |
| MUNG          | 3.84         | 524.00         | 7.13              | 3.46          | 514.00         | 5.78              | 3.45         | 524.40         | 5.73              | -2.47                       | 1.15   | -1.35  | -3.01 | 4.57  | 1.42   | -0.67  | -9.36  | -9.97  |
| KULTHI        | 4.30         | 542.40         | 3.11              | 4.44          | 535.00         | 2.89              | 4.69         | 416.00         | 2.29              | 4.05                        | 2.43   | 6.58   | -0.19 | 5.03  | 4.83   | 1.86   | -20.62 | -19.14 |
| ARHAR         | 1.71         | 733.20         | 4.02              | 1.81          | 854.80         | 4.48              | 2.06         | 831.40         | 4.83              | 6.89                        | 17.51  | 25.61  | -3.73 | 1.03  | -2.74  | -2.10  | -14.80 | -16.59 |
| GRAM          | 0.90         | 627.60         | 1.50              | 0.70          | 675.60         | 1.17              | 0.91         | 490.80         | 1.09              | -2.78                       | 5.75   | 2.81   | 4.07  | -2.19 | 1.79   | -1.20  | -13.54 | -14.58 |
| TIL           | 2.87         | 528.00         | 4.43              | 3.76          | 335.00         | 3.39              | 3.86         | 412.60         | 4.09              | 3.67                        | 3.33   | 7.13   | 4.09  | 14.68 | 19.38  | -0.64  | -9.21  | -9.79  |
| MUSTARD       | 1.21         | 512.40         | 1.93              | 1.36          | 632.20         | 2.44              | 1.01         | 402.00         | 1.23              | -7.47                       | 6.75   | -1.22  | 4.56  | 0.11  | 4.67   | -19.19 | -23.44 | -38.13 |
| GROUNDNUT     | 1.54         | 1114.80        | 4.54              | 1.53          | 1419.20        | 5.18              | 1.56         | 1416.40        | 5.16              | 5.04                        | 7.77   | 13.20  | -1.38 | 1.64  | 0.24   | -11.62 | -2.05  | -13.43 |
| ONION         | 0.47         | 5753.40        | 3.11              | 0.39          | 2955.00        | 1.18              | 0.33         | 4985.60        | 1.71              | 1.19                        | -24.60 | -23.71 | 3.42  | 4.74  | 8.32   | -2.86  | 10.37  | 7.22   |
| POTATO        | 0.14         | 7752.60        | 0.74              | 0.13          | 7874.60        | 0.66              | 0.15         | 6992.00        | 0.65              | 4.46                        | -0.42  | 4.02   | 3.27  | 1.16  | 4.47   | 0.31   | 3.91   | 4.23   |
| SUGARCANE     | 0.08         | 5464.80        | 0.94              | 0.08          | 7360.60        | 1.05              | 0.05         | 5874.42        | 0.55              | 10.03                       | -2.08  | 7.74   | -0.66 | 0.27  | -0.39  | -1.53  | -0.88  | -2.39  |
| JUTE          | 0.00         | 0.00           | 0.00              | 0.00          | 0.00           | 0.00              | 0.00         | 0.00           | 0.00              | N.C                         | N.C    | N.C    | N.C   | N.C   | N.C    | N.C    | N.C    | N.C    |
| COTTON        | 0.03         | 141.78         | 0.02              | 0.01          | 134.64         | 0.00              | 0.00         | 0.00           | 0.00              | -                           | -      | -      | -     | -     | -      | -      | N.C    | N.C    |

Source: As in Table no 3.1

From table no 2.13 it is evident that during first period 54.07% of GCA was under Paddy with yield level 1,196 kgs/ha. In the final period the area share (57.65%) as well as yield level (1,382 kgs/ha) has gone up. In first period, 1.48% of GCA was under Wheat with yield level 1,673 kgs/ha. In the final period, the area share (0.58%) as well as yield level (1580 kgs/ha) has gone down. In case of Maize also, 1.48% of GCA was under the crop with yield level 852 kgs/ha in first period. In the final period, the area share (1.69%) as well as yield level (1595.8 kgs/ha) has gone up.

Among pulses, 4.36% of GCA was under Biri with yield level 533 kgs/ha during 1<sup>st</sup> period. In the final period, the area share (4.88%) has gone down. In case of mung, 3.84% of GCA was under the crop with yield level 524 kgs/ha. In the final period, the area share (3.45%) has gone up with stagnant yield level. In case of Kulthi, 4.30% of GCA was under the crop with yield level 524 kgs/ha. In the final period, the area share (4.69%) has gone up but yield level (416 kgs/ha) has gone down. In case of Arhar, during first period, 1.71% of GCA was under the crop with yield level 733 kgs/ha. In the final period, the area share (2.06%) as well as yield level (831 kgs/ha) has gone up.

Among oilseeds, Til occupied 2.87% of GCA with yield level 238 kgs/ha during 1<sup>st</sup> period. In the final period, though the area share (3.56%) has gone up but yield level (412 kgs/ha) has gone down. In case of Groundnut, 1.54% of GCA was under the crop with yield level 1114.0 kgs/ha in first period. In the final period, the area share (1.56%) as well as yield level (1466 kgs/ha) has gone up. In case of Mustard, 1.21% of GCA was under the crop with yield level 512 kgs/ha but in the final period, the area share (1.01%) as well as yield level (502 kgs/ha) has gone down.

Among cash crops onion occupied 0.47% of GCA with yield level 5,753 kgs/ha in the first period. In the final period, the area share (0.33%) as well as yield level (4,985 kg) has gone down. In case of potato, 0.14% of GCA was under the crop with yield level 7,752 kgs/ha in the first period. In the final period, the area share (0.15%) has marginally gone up but yield level (6,992 kgs/ha) has gone down. And in case of Sugarcane, 0.08% of GCA with yield level 6426.8 kgs/ha was under the crop in first

period. During the final period, with area share 0.04%, the yield level (6,245 kgs/ha) has gone down.

#### OBSERVATIONS

- (1) Like most of the districts, in Sundargarh also Paddy is the principal crop w.r.t. Area coverage as well as contribution to total output.
- (2) The area share of all crops except, Maize, Ragi, Kulthi, Arhar, Til and Mustard, has gone down in second period comparing with first period. In third period, except, Paddy, mung, Arhar, Gram, Til, Mustard and Potato, the area share of all other crops has gone down in comparison with second period.
- (3) In second period, the yield of mung, Kulthi, Til Onion and Cotton has gone down in comparison with first period. In third period, except, Maize Jawar, Mung, oil and Onion the yield level of all others crop has gone down in comparison with second period.
- (4) Similarly in first period, except, paddy, Wheat, Jawar Kulthi, Arhar, gram and Potato, the area share of all other crops was less than the state average. In third period, the area share of Maize, Ragi, Biri, mung, Mustard, Groundnut, and onion was less than state average. In first period, the yield level of Paddy, Maize, Jawar, Ragi, Groundnut, onion and Potato was less than state average. In third period, the yield level of Paddy, Gram, Onion, potato and Sugarcane was less than state average.
- (5) The agricultural performance of the district was better in second period in comparison with two other periods.

## SECTION 3

### Inter-District Analysis Of Cropping Pattern

From our above analysis it is found that paddy is the single most important crop in each and every district. But there is variation in area coverage under each crop among districts and this is changing over time.

**Table No: 2.14**  
**Inter-District Comparison Of Cropping Pattern: 1985-86 To 1999-00**

|                       | FIRST PERIOD                                                                    |   | SECOND PERIOD                                                                   |   | THIRD PERIOD                                                                    |
|-----------------------|---------------------------------------------------------------------------------|---|---------------------------------------------------------------------------------|---|---------------------------------------------------------------------------------|
| <i>CEREALS</i>        |                                                                                 |   |                                                                                 |   |                                                                                 |
| (1) A > 50%           | Mayurbhanj, Balasore Keonjhar, Sundargarh Koraput, Sambalpur, Bolangir, Puri    | 1 | Mayurbhanj, Balasore, Sambalpur, Keonjhar, Sundargarh, Puri, Koraput, Bolangir, | 1 | Balasore, Mayurbhanj, Sambalpur, Sundargarh, Keonjhar, Koraput, Cuttack, Ganjam |
| (2) 40% < A < 50%     | Cuttack, Kalahandi, Ganjam                                                      | 2 | Cuttack, Ganjam, Kalahandi, Phulbani                                            | 2 | ***                                                                             |
| (3) A < 40%           | Dhenkanala, Puri                                                                | 3 | Dhenkanala                                                                      | 3 | Phulbani, Kalahandi, Dhenkanala                                                 |
| <i>COARSE CEREALS</i> |                                                                                 |   |                                                                                 |   |                                                                                 |
| (1) A > 5%            | Koraput, Ganjam, Phulbani Kalahandi, Keonjhar                                   | 1 | Koraput, Ganjam, Phulbani, Keonjhar                                             | 1 | Koraput, Ganjam, Phulbani                                                       |
| (2) 1% < A < 5%       | Puri, Sundargarh, Mayurbhanj Bolangir, Dhenkanala, Cuttack                      | 2 | Kalahandi, Mayurbhanj, Sundargarh<br><b>Bolangir, Puri, Dhenkanala</b>          | 2 | Keonjhar, Kalahandi, Mayurbhanj, Sundargarh, Bolangir, Dhenkanala, Puri         |
| (3) A < 1%            | Sambalpur, Balasore                                                             | 3 | Cuttack, Sambalpur, Balasore                                                    | 3 | Cuttack, Sambalpur, Balasore                                                    |
| <i>PULSES</i>         |                                                                                 |   |                                                                                 |   |                                                                                 |
| (1) A > 20%           | Ganjam, Cuttack, Dhenkanala Puri, Phulbani, Kalahandi                           | 1 | Ganjam, Kalahandi, Dhenkanala, Cuttack, Puri                                    | 1 | Kalahandi, Ganjam, Dhenkanala, Puri Cuttack                                     |
| (2) 10% < A < 20%     | Bolangir, Sundargarh, Keonjhar, Balasore, Sambalpur, Mayurbhanj Koraput         | 2 | Bolangir, Phulbani, Sundargarh, Sambalpur, Keonjhar                             | 2 | Bolangir, Phulbani, Sundargarh Keonjhar, Sambalpur, <b>Koraput</b>              |
| (3) A < 10%           | ***                                                                             | 3 | ***                                                                             | 3 | Mayurbhanj, Balasore                                                            |
| <i>OIL SEEDS</i>      |                                                                                 |   |                                                                                 |   |                                                                                 |
| (1) A > 10%           | Dhenkanala, Ganjam, Bolangir, Sambalpur, Phulbani, Cuttack, Kalahandi, Keonjhar | 1 | Dhenkanala, Sambalpur, Bolangir, Phulbani, Cuttack                              | 1 | Dhenkanala, Sambalpur, Kalahandi, Bolangir, Phulbani,                           |
| (2) 5% < A < 10%      | Sundargarh, Puri, Koraput, Balasore                                             | 2 | Ganjam, Kalahandi, Sundargarh, Keonjhar, Balasore, Koraput, Puri, Mayurbhanj    | 2 | Cuttack, Ganjam, Sundargarh, Koraput, Keonjhar                                  |
| (3) A < 5%            | Mayurbhanj                                                                      |   |                                                                                 | 3 | Puri, Balasore, Mayurbhanj                                                      |
| <i>CASH CROPS</i>     |                                                                                 |   |                                                                                 |   |                                                                                 |
| (1) A > 2%            | Cuttack, Bolangir                                                               | 1 | Cuttack                                                                         | 1 | Cuttack, Koraput, Bolangir                                                      |
| (2) 1% < A < 2%       | Balasore, Dhenkanala, Puri, Koraput, Ganjam, Keonjhar, Kalahandi, Sambalpur     | 2 | Bolangir, Balasore, Dhenkanala, Kalahandi, Puri, Keonjhar, Koraput, Ganjam      | 2 | Balasore, Kalahandi, Dhenkanala, Puri, Sambalpur, Ganjam                        |
| (3) A < 1%            | Phulbani, Sundargarh, Mayurbhanj                                                | 3 | Mayurbhanj, Sambalpur, Sundargarh, Phulbani                                     | 3 | Keonjhar, Phulbani, Mayurbhanj, Sundargarh                                      |

Source: As in table no 2..1 , A= Percentage share in GCA.

## 3.1 PADDY

From the Table no.3.14 it is clear that during first period (a) Mayurbhanj, Balasore, Sambalpur, Keonjhar, Sundargarh, Koraput, Bolangir and Puri districts have more than 50% of GCA under Paddy. Among these districts except Balasore and Puri, all are non-coastal hilly region. Cuttack, Kalahandi and Ganjam have less than 50% (i.e. 40 to 50%) of GCA under Paddy. And Dhenkanal and Phulbani have less than 40% (i.e. 30 to 40%) of GCA under paddy during first period.

During second period, the same eight districts have more than 50% of GCA under Paddy, though relative position of last three districts have been changed. Phulbani's share under paddy has increased in second period, and joined in the less than 50% group. In second period, Dhenkanala is the only districts, which has less than 40% of GCA under paddy.

During final period, along with the existing districts, Cuttack and Ganjam have joined with the group of more than 50% of GCA under Paddy. Dhenkanala's area share under Paddy has gone up and joined in the less than 50% area share group. From the above it is clear that, above mentioned 8 districts have maintained more than 50% of area under Paddy and during the last period, two new districts; that is Cuttack and Ganjam have entered in to the group.

## 3.2 PULSES

In case of pulses Ganjam, Cuttack Dhenkanala, Puri (all coastal and central districts) Phulabani and Kalahandi have area share more than 20% of GCA during first period. All other districts have area share less than 10% (i.e. 10-20 %) under pulses.

During second period, except Phulbani, all other districts, which were in more than 20% group during first period, also have maintained their position. The other 8 districts have area share less than 20% (10-20%) under pulses.

During third period, the same 5 districts of second period were in the top list with more than 20% of GCA under pulses. Mayurbhanj and Bolangir who were in the second level during the second period have lost their area share and have gone down to third level with less than 10% of GCA under the crop. All other districts have area share more than 10%(but less than 20%) during the final period also.

From the above it is obvious that coastal districts have more area share in pulse than non-coastal districts.

### 3.3 OIL SEEDS

During first period, Dhenkanala, Ganjam, Bolangir, Sambalpur, Cuttack, Kalahandi and Keonjhar have more than 10% of GCA under oilseeds. Sundargarh, Puri, Koraput and Bolangir have less than 10% (5-10%) of GCA under the crop. Mayurbhanj was in the lowest level with less than 5% of GCA under oilseeds.

During second period, Kalahandi and Keonjhar's area share has gone down and have joined in the second level (i.e. less than 10% of GCA). Remaining 5 districts of top slot in first period have maintained their position. In second level, (i.e. less than 10% category), along with Ganjam and Keonjhar, there are 6 districts. Puri district, which was in second level in first period, had gone down to third category as its area share had reduced. Puri and Mayurbhanj were in the last slot (i.e. less than 5%) in second period.

In third period, only Dhenkanala and Sambalpur have more than 10% of GCA under oilseeds. Bolangir, Puri, Cuttack whose area share was more than 10% in second period had joined in second level with less than 10% of GCA under the crop. In second level, now there are 8 districts. In third level i.e. less than 5% of GCA, there are 9 districts with inclusion of Bolangir.

From the above analysis, it is clear that the districts share under oil seeds is going down as the number of districts in the top slot has gone down (8 in first period, 5 in second period and 2 in third period) and number of district in bottom category is increasing (1 in first period, 2 in second period and 3 in third period).

## 3.4 CASH CROPS

During first period, Cuttack and Bolangir have more than 2% of GCA under Cash crops. Bolangir, Dhenkanala, Puri, Koraput, Ganjam, Keonjhar Kalahandi and Sambalpur have area share less than 2% (i.e. 1-2%) in first period. Phulbani, Sundargarh, Mayurbhanj have area share less than 1% under cash crops in first period.

In second period, Bolangir's share has gone down so it joined in second level i.e. area share less than 2%. Sambalpur whose rank was in second level in first period had lost area and joined in 3<sup>rd</sup> level in second period. Thus, there are 4 districts in bottom category whose area share is less than 1% under cash crops during second period.

But, in third period there is an improvement. Koraput and Bolangir have joined with Cuttack in the first level (i.e. more than 2% of GCA). Sambalpur which was in the bottom level in second period has joined in second level but Keonjhar which was in second level in second period had lost area and joined in 3<sup>rd</sup> level i.e. less than 1% of GCA under cash crop in third period.

## SECTION 4

### .4.1 Cropping Pattern And It's Implication For Orissa's Food Economy

As per the latest estimation of the planning commission, Orissa has the highest proportion of population living below poverty line. In the year 1999-00, the % of people living below poverty line (BPL) in the state was 47.2% whereas; it was 42.6% in case of Bihar. On the other hand, the all India average was found to be 26.10%.

Besides, in Orissa, region like southern and northern are not well developed as compared to the coastal region. One of the important reasons for this is the higher concentration of ST population in the above two region. In 1983, the % share of ST population in the coastal region of rural Orissa was 7.2%, whereas it was as high as 39.7% in the southern region and 34.5% in the northern region (*Orissa development report, 2001*).

Poor people, though do not like, but to survive eat coarse cereals like Jawar, Maize, and Ragi as it costs less. In *first period*, there are 5 districts whose area share under coarse cereals was more than 5%. These districts are Koraput, Phulbani, Kalahandi, Keonjhar (all non-coastal hilly region with tribal dominance) and Ganjam, Puri, Sundargarh, Mayurbhanj, Bolangir, Dhenkanala, Cuttack had area share less than 5% but more than 1%. Sambalpur and Bolangir had area share less than 1%.

During second period, there was a significant change. There were 4 districts whose area share was more than 5% under coarse cereals and 3 districts whose area share was even less than 1% (i.e. on the contrary during first period 6 districts were in first category and only 2 district in 3<sup>rd</sup> category). Kalahandi, the district where incidence of poverty is very high, had lost area by 3% under coarse cereals in second period. In third period, there are only 3 districts (i.e. Koraput, Ganjam and Phulbani) whose area share under coarse cereals is more than 5%. Keonjhar had lost 2% area under coarse cereals in third period in comparison to second period.

Thus from above it is very apparent that area coverage under coarse cereals as well as yield level is going down over the years in the district where incidence of poverty is very high. Not only that, from earlier analysis it is seen that the area share of districts for cash crop is going up (i.e. In first period, there is only one district whose area share was greater than 2% under cash crop, in second period it turned to two and three in third period). Surprisingly the new addition districts are non-coastal region (i.e. Koraput and Bolangir). Thus, a review of the situation is needed and steps must be taken to ensure minimum food to poor people.

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