

Chapter III

NON PHYSICAL DETERMINANTS

In Chapter-II we have seen varying physical condition are indeed responsible for variations in regional patterns of agricultural phenomena. However, the differential degree of combinations in institutional, biotechnological, operational, demographic, cultural and infrastructural factors influencing agricultural patterns must be considered useful. This is because the combination of these circumstances furnish the basic material need for explaining the modification brought about in agricultural activities which otherwise are the primary creation of natural forces. Therefore, their discussion is unavoidable to comprehend the varying levels of agricultural development within Malda.

This chapter discusses the various non-physical determinants viz. a) Technological factors –irrigation, other inputs, levels of agricultural modernization b) Population characteristics c) Cultural factors - ownership holding, tenural arrangement farm family characteristics and labour force d) Infrastructural services - marketing facilities, transport and accessibility and credit facilities. It shows the similarity and dissimilarity of the factors across regions and attempts to relate these determinants with overall productivity of the region.

a. Technological factors:

It has been established that various technological variables are important towards supporting agricultural activities and for the improvement of productivity. In any part of the world land surface is fixed and only a certain proportion of land is available for cultivation. So to increase production, improvement of productivity is the norm, which in turn implies intense use of inputs by adopting modern methods of production through use of improved technology. Thus agricultural production and its efficiency largely depend upon inputs applied and the methods adopted. Among the technological factors irrigation, machines for farming, improved quality of seeds, fertilizers, pesticides etc are the

important ones which needs to considered individually for analysis and this section attempts to do so.

Irrigation:

It has been concluded time and again that agriculture in India is exposed to the vagaries of monsoon. So without assured irrigation agricultural production is a risky venture. But the Sub-Himalayan West Bengal and *Terai* region is comparatively less affected by the irregularities of rainfall as this area regularly receives normal or above normal rainfall. Malda, which happens to be a part of this geographical region, too receives normal rainfall but to enable multiple cropping irrigation is important and also to facilitate continuous and timely water supply irrigation assumes a great importance.

Irrigation plays significant role in the efficient use of arable land. By artificial application of water, deficiencies and variabilities of rainfall can be compensated to improve crop yield and cropping pattern through substantial exploitation of soil potential. Since most of the traditional sources of irrigation depend on collected amount of run off, enough water is rarely available for irrigational purposes all the year round. According to the farmers of the district with the introduction of tube-wells remarkable progress in irrigation has been achieved in the district. Presently the agricultural stability and development in the district depend upon the availability of irrigational water by various sources.

Table 3.1 provides the area irrigated block wise.

Table :3.1 Irrigation Potentials of Malda District (2000-2001)

| | Net Irrigated Area (ha) | Net Sown area (ha) | Area irrigated as % of Net Sown Area |
|---------------------|-------------------------|--------------------|--------------------------------------|
| Harishchandrapur I | 9,616 | 13,757 | 69.9 |
| Harishchandrapur II | 11,250 | 12,415 | 90.6 |
| Chanchal I | 9,330 | 13,042 | 71.5 |
| Chanchal II | 7,640 | 14,599 | 52.3 |
| Ratua I | 9,530 | 13,137 | 72.5 |
| Ratua II | 8,943 | 13,413 | 66.7 |
| Tal | 56,309 | 80,363 | 70.1 |
| Gazole | 10,997 | 40,024 | 27.5 |
| Bamongola | 5,585 | 15,511 | 36.0 |
| Habibpur | 9,404 | 30,920 | 30.4 |
| Old Malda | 5,202 | 16,084 | 32.3 |
| Barind | 31,188 | 102,539 | 30.4 |
| English Bazar | 6,230 | 17,952 | 34.7 |
| Manikchak | 6,719 | 24,590 | 27.3 |
| Kaliachak I | 2,760 | 6,583 | 41.9 |
| Kaliachak II | 2,538 | 7,030 | 36.1 |
| Kaliachak III | 5,853 | 16,167 | 36.2 |
| Diara | 24,100 | 72,322 | 33.3 |
| Malda | 111,597 | 255,224 | 43.7 |

Regionally the sources of irrigation are utilized in Tal region more extensively and 70.1 percent of net sown area is irrigated, while in Barind and Diara region only 30.4 and 33.3 percent of net sown area is irrigated. Table 3.2 substantiates the difference in level of irrigation with the help of primary data.

Table 3.2 Availability of Irrigation in Malda: Region Wise

| | Avails Irrigation | Do not Avail Irrigation |
|---------------|-------------------|-------------------------|
| Tal | 98% | 2% |
| Barind | 47% | 53% |
| Diara | 73% | 27% |
| Malda | 73% | 27% |

Derived from Primary Survey result of 368 respondents

The principal cause of low irrigation in these two regions is different. In Barind region it can be attributed to the physiographic factors, while in Diara it is the cropping pattern. It has been found that the water level depth in Barind region is high, so to enable irrigation DTW is required. Table 3.3 shows the result from the primary survey that the water level depth affects the availability of water in Barind region.

Table 3.3 Water depth level: Region Wise

| | 5-10mts | 10-15mts | 15-20mts | >20mts |
|---------------|---------|----------|----------|--------|
| Tal | 1% | 3% | 17% | 79% |
| Barind | 4% | 0% | 4% | 92% |
| Diara | 0% | 0% | 66% | 34% |
| Malda | 1% | 2% | 27% | 70% |

Derived from Primary Survey result of 184 respondents

In Diara region the low irrigation percentage is mainly because a high percentage of area is under Mango cultivation wherein the irrigation facility is not required.

As seen earlier, physiography of the district has profound influence on sources of irrigation and each source has its potentials to provide irrigation. Therefore it is necessary to study the distribution of source wise irrigation areas in the study region. The study indicates that the entire district is irrigated by D.T.W., S.T.W., R.L.I. and Other sources (Canal, Tank, Bodo-Bunds) etc. Map 3.1 illustrates the sources of irrigation in Malda.

The age-old practice of irrigation through various means and from various sources reflects the awareness of farmers who not only perceived but developed sources to collect run-off and utilize it for irrigation. With the introduction of various seasonal crops irrigation has acquired significant place in agriculture, because many of these crops are not possible to grow economically in areas of periodic and erratic rainfall in the district. Table 3.4 below provides the number of units, area irrigated and share of each type of irrigation to total irrigated area in Malda district.

3.1 Types of Irrigation



Chapter III 'Sechan'

STW



STW

Map No: 3.1

SOURCES OF IRRIGATION IN MALDA: BLOCK WISE (2000-01)

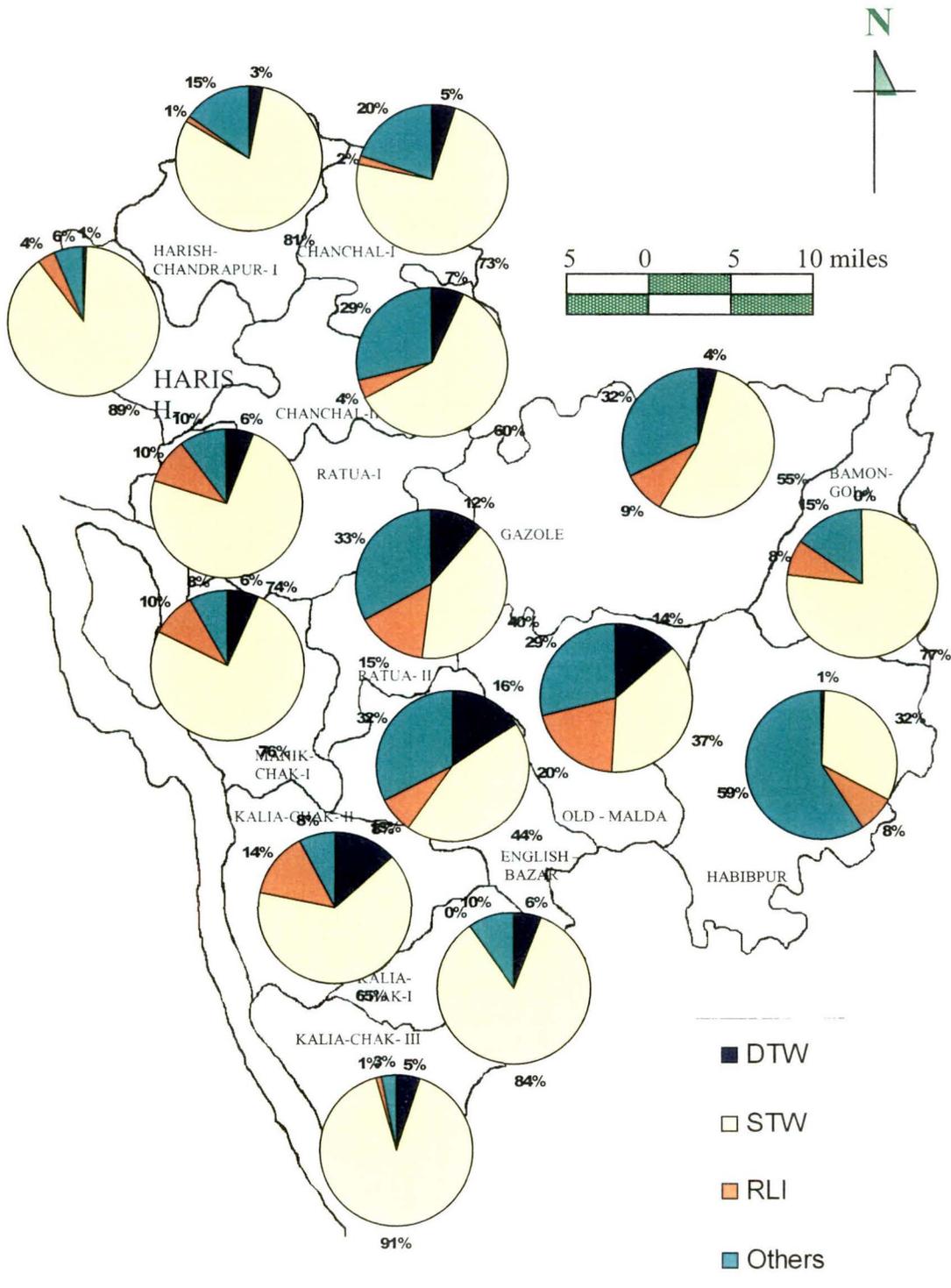


Table 3.4: Type of Irrigation in Malda: Blockwise (2000-01)

| | D.T.W | | | S.T.W | | | R.L.I | | | OTHERS | | |
|--|--------------|--------------|------------|---------------|---------------|-------------|--------------|--------------|-------------|--------------|---------------|-------------|
| | No. of Units | Area (ha) | % | No. of Units | Area (ha) | % | No. of Units | Area (ha) | % | No. of Units | Area (ha) | % |
| Harishchandrapur I | 25 | 300 | 3.1 | 3,074 | 7,705 | 80.1 | 9 | 142 | 1.5 | 362 | 1,469 | 15.3 |
| Harishchandrapur II | 10 | 105 | 0.9 | 4,474 | 10,000 | 88.9 | 31 | 435 | 3.9 | 175 | 710 | 6.3 |
| Chanchal I | 21 | 500 | 5.4 | 2,111 | 6,800 | 72.9 | 22 | 180 | 1.9 | 761 | 1,850 | 19.8 |
| Chanchal II | 32 | 525 | 6.9 | 2,194 | 4,600 | 60.2 | 22 | 290 | 3.8 | 445 | 2,225 | 29.1 |
| Ratua I | 33 | 590 | 6.2 | 2,616 | 6,995 | 73.4 | 32 | 975 | 10.2 | 110 | 970 | 10.2 |
| Ratua II | 71 | 1,045 | 11.7 | 1,405 | 3,590 | 40.1 | 60 | 1,358 | 15.2 | 290 | 2,950 | 33.0 |
| Tal | 192 | 3,065 | 5.4 | 15,874 | 39,690 | 70.5 | 176 | 3,380 | 6.0 | 2,143 | 10,174 | 18.1 |
| Gazole | 62 | 415 | 3.8 | 4,000 | 6,000 | 54.6 | 45 | 1,022 | 9.3 | 2,122 | 3,560 | 32.4 |
| Bamongola | | | 0.0 | 1,850 | 4,285 | 76.7 | 28 | 450 | 8.1 | 966 | 850 | 15.2 |
| Habibpur | 13 | 80 | 0.9 | 1,800 | 3,009 | 32.0 | 39 | 740 | 7.9 | 1,051 | 5,575 | 59.3 |
| Old Malda | 47 | 715 | 13.7 | 1,150 | 1,925 | 37.0 | 37 | 1,062 | 20.4 | 230 | 1,500 | 28.8 |
| Barind | 122 | 1,210 | 3.9 | 8,800 | 15,219 | 48.8 | 149 | 3,274 | 10.5 | 4,369 | 11,485 | 36.8 |
| English Bazar | 46 | 970 | 15.6 | 1,043 | 2,760 | 44.3 | 20 | 500 | 8.0 | 137 | 2,000 | 32.1 |
| Manikchak | 17 | 434 | 6.5 | 2,387 | 5,084 | 75.7 | 21 | 651 | 9.7 | 26 | 550 | 8.2 |
| Kaliachak I | 13 | 160 | 5.8 | 1,295 | 2,330 | 84.4 | 4 | | 0.0 | 23 | 270 | 9.8 |
| Kaliachak II | 24 | 336 | 13.2 | 768 | 1,652 | 65.1 | 11 | 350 | 13.8 | 18 | 200 | 7.9 |
| Kaliachak III | 38 | 293 | 5.0 | 2,670 | 5,300 | 90.6 | 3 | 60 | 1.0 | 14 | 200 | 3.4 |
| Diara | 138 | 2,193 | 9.1 | 8,163 | 17,126 | 71.1 | 59 | 1,561 | 6.5 | 218 | 3,220 | 13.4 |
| Source: Malda District Annual Plan, P.A.O. 2000-01 | | | | | | | | | | | | |
| Malda | 452 | 6,468 | 5.8 | 32,837 | 72,035 | 64.5 | 384 | 8,215 | 7.4 | 6,730 | 24,879 | 22.3 |

Distribution of Shallow Tube-Well Irrigation: Tube wells are an important source of irrigation in this district. Shallow tube-wells are technically feasible in most of the places in Tal and Diara Region because these areas are rich in sub-soil water resources. But in Barind region only ‘*doba*’ area offers opportunity for S.T.W. Tube well irrigation can be summarized by the fact that the number of S.T.W. in the district was 32,837 in 2000-01. In Malda district the percentage of irrigated area is mainly benefited by S.T.W., because it is easy to install. Wherever ground water level is not at depth and the farmers can afford to invest for S.T.W., this is the preferred mode. In Tal region, area benefited by S.T.W. is 70.5 percent, while in Barind it is only 48.8 percent and Diara is 71.1 percent. Of the 15 blocks S.T.W. is most important source of irrigation in Kaliachak III (90.6%) in Diara region followed by Harishchandrapur II (88.9%) in Tal region and Kaliachak I (84.4%) in Diara region. While in Barind region Bamongola is the only block where percentage of S.T.W. irrigation is high (76.7 %).

Distribution of Deep Tube-Well Irrigation: The total number of D.T.W. in Malda district for the year of 2000-01 is 452. The number of D.T.W. in the district is low because higher cost is involved and it is difficult to install.

Distribution of River Lift Irrigation: R.L.I. is the another important source of irrigation. 7.4 percent area is benefited by river lifting irrigation. In Tal region 6% area is benefited by this source whereas in Barind region it is 10.5 percent and Diara region it is 6.5 percent.

Table 3.5 substantiates the above observation with the results from the primary survey. It shows the percentage of respondents using different types of irrigation facility. One needs to remember that the primary survey results are based on the number of responses and not the area irrigated.

Table 3.5: Usage of Types of Irrigation in Malda: RegionWise

| | DTW | STW | RLI | Others |
|--------|-----|-----|-----|--------|
| Tal | 4% | 90% | 2% | 4% |
| Barind | 16% | 34% | 27% | 23% |
| Diara | 28% | 49% | 20% | 3% |
| Malda | 14% | 65% | 13% | 8% |

Derived from Primary Survey result of 265 respondents

Other Inputs:

Fertiliser:

For proper growth of plants and higher yield of crops fertilizer plays an important role. Fertilizer usage should be according to the crop and quality of the soil. For this proper soil testing and consultation is required. Here, we try to take stock of this important ingredient in the district.

Table 3.6 provides an understanding of the level of awareness in the district and its regional variation. It shows that the awareness is spread from low to high.

Table 3.6: Fertiliser Awareness Level: Region Wise

| | Very High | High | Medium | Low | Very low |
|---------------|------------------|-------------|---------------|------------|-----------------|
| Tal | 2.4% | 16.5% | 42.5% | 36.2% | 2.4% |
| Barind | 0.7% | 29.1% | 46.3% | 21.6% | 2.2% |
| Diara | 2.0% | 30.6% | 54.1% | 11.2% | 2.0% |
| Malda | 1.7% | 25.1% | 47.1% | 24.0% | 2.2% |

Derived from Primary Survey result of 359 respondents

We find that the level of awareness is comparatively poor in Tal region. People are comparatively more aware of fertilizer facility in Diara region. The awareness was measured in the survey based on the responses to the investigator's query on name of fertilizers to be used crop wise, the ratio of NPK to be used etc.

In many cases we find that even the farmers are aware of the fertiliser usage pattern but they are unable to use the same because of low capital and accessibility problems. Table 3.7 provides an overview of the number of fertiliser outlets in the different blocks of the district. It shows that the number of outlets is comparatively more in Gazole, Habibpur and Kaliachak-III. This does not provide much insight, as we are unable to comment on the outlet density. So, we calculated the outlet density for each block shown in the same table.

Table 3.7: Number of Fertilizer Depots in Malda: Block Wise (2000-01)

| | Number of Fertiliser Depots | Fertilizer depot per 1000 ha |
|---------------------|-----------------------------|------------------------------|
| Harishchandrapur I | 45 | 2.62 |
| Harishchandrapur II | 46 | 2.17 |
| Chanchal I | 45 | 2.84 |
| Chanchal II | 24 | 1.17 |
| Ratua I | 54 | 2.44 |
| Ratua II | 77 | 4.47 |
| Tal | 291 | 2.55 |
| Gazole | 180 | 3.55 |
| Bamongola | 83 | 4.07 |
| Habibpur | 113 | 2.88 |
| Old Malda | 61 | 2.73 |
| Barind | 437 | 3.29 |
| English Bazar | 68 | 2.70 |
| Manikchak | 30 | 0.95 |
| Kaliachak I | 69 | 6.67 |
| Kaliachak II | 42 | 1.96 |
| Kaliachak III | 131 | 5.55 |
| Diara | 777 | 6.93 |
| Malda | 1505 | 4.19 |

Source: District Statistical Handbook, Malda, Bureau of Applied Economics & Statistics, Government of West Bengal, 2001

It shows the outlet density is comparatively high in Kaliachak-I, Kaliachak-III, Ratua-II and Bamongola. But this analysis is again unable to provide an insight regarding the accessibility of outlets by the farmers, as these outlets can be concentrated at a particular place. Table 3.8 provides an overview of the accessibility of region wise.

Table 3.8: Accessibility of Fertiliser Outlets in Malda: Region Wise

| | Very easy | Easy | Medium | Difficult | Very Difficult |
|--------------|-------------|--------------|--------------|--------------|----------------|
| Tal | 0.8% | 56.7% | 17.3% | 4.7% | 20.5% |
| Barind | 1.5% | 41.8% | 30.6% | 17.9% | 8.2% |
| Diara | 0.0% | 27.6% | 5.1% | 56.1% | 11.2% |
| Malda | 0.8% | 43.2% | 18.9% | 23.7% | 13.4% |

Derived from Primary Survey result of 359 respondents

It shows that though in Tal region density of fertiliser outlets is comparatively low (56.7 percent) but farmers can easily access the outlets. But a considerable number of farmers (20.5 percent) from Tal also find extremely difficult to access the outlets.

Another important aspect of fertiliser usage is the right usage and maintenance of the NPK ratio. The Table 3.9 provides the consumption of fertiliser in terms of NPK for the years 1994 to 2000-01.

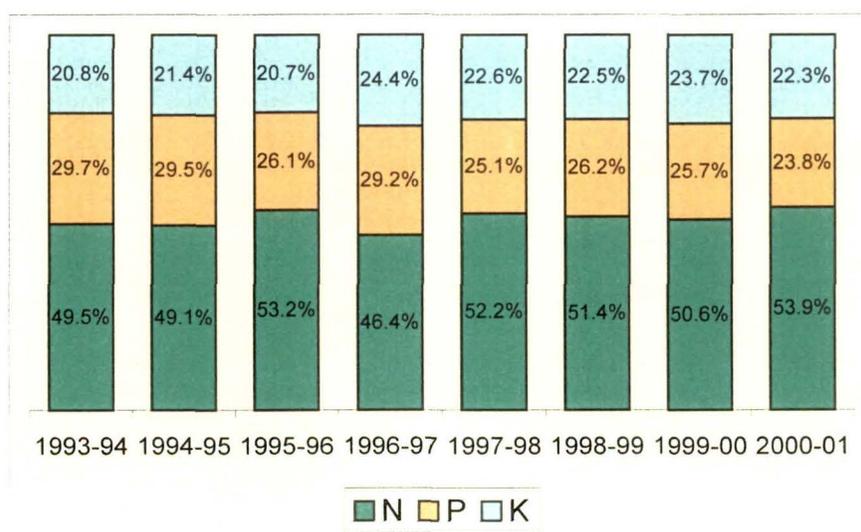
Table 3.9 Consumption of Fertilizer in Malda (in MT)

| Year | N | P | K | Total |
|---------|--------|--------|--------|--------|
| 1993-94 | 28,500 | 17,100 | 12,000 | 57,600 |
| 1994-95 | 28,600 | 17,200 | 12,500 | 58,300 |
| 1995-96 | 24,400 | 12,000 | 9,500 | 45,900 |
| 1996-97 | 34,918 | 21,947 | 18,315 | 75,180 |
| 1997-98 | 29,700 | 14,300 | 12,870 | 56,870 |
| 1998-99 | 29,870 | 15,200 | 13,050 | 58,120 |
| 1999-00 | 29,899 | 15,197 | 13,986 | 59,082 |
| 2000-01 | 26,901 | 11,862 | 11,142 | 49,905 |

Source: Agricultural Scenario, PAOMalda

We find that the ratio of fertiliser usage is gradually shifting towards nitrogen and potash. This is seen from the Fig 3.1 which shows the NPK ratio over the same period.

Fig 3.1 NPK Ratio of Fertilizer Consumption in Malda



Derived from Table 3.9

Table 3.10 provides the right composition of NPK for various crops.

Table 3.10: Correct Dosage of NPK: Crop Wise (kg per hectare)

| CROP | N | P | K |
|----------------|-----|-----|-----|
| Aus | 50 | 25 | 25 |
| Aman | 60 | 30 | 30 |
| Boro | 125 | 60 | 60 |
| Wheat | 10 | 50 | 50 |
| Mustard | 80 | 40 | 40 |
| Jute | 40 | 20 | 20 |
| Potato | 125 | 100 | 100 |
| Kalai | 4 | 16 | |
| Arhar | 40 | 20 | 20 |
| Gram | 4 | 16 | |
| Lentil | 4 | 16 | |

Source: Sub-Division Agriculture Office, Chanchal

Against this right composition, as no secondary data is available at region level, we have collected the data of NPK usage for three regions through our primary survey. Table 3.11 shows the findings of the survey.

Table 3.11: NPK usage in Malda

| | N | P | K |
|---------------|------|------|------|
| Tal | 19.3 | 15.8 | 9.0 |
| Barind | 24.6 | 15.8 | 13.3 |
| Diara | 18.3 | 15.1 | 10.6 |
| Malda | 21.1 | 15.6 | 11.2 |

Derived from Primary Survey result of 359 respondents

We find, Barind comparatively uses more fertiliser than its counterparts and the usage is biased for nitrogenous and potash fertilizers. Usage pattern of Tal and Diara is almost similar. Thus we find fertiliser, which happens to be an important, an important factor to support HYV seeds and thereby increase production faces the problem of awareness accessibility and right composition.

Pesticide:

In progressive farming pesticides play an important role and in Malda's agriculture scenario where pests have played havoc and affected the yield substantially in certain years, pesticide assumes further importance.

Awareness of pesticide in Malda is normally spread with farmers' awareness level being medium (70.0 percent). Table 3.12 shows the awareness level for individual regions. No significant variance is observed among the regions.

Table 3.12: Pesticide Awareness Level: Region Wise

| | Very High | High | Medium | Low | Very low |
|---------------|------------------|-------------|---------------|------------|-----------------|
| Tal | 0.0% | 10.1% | 67.9% | 22.0% | 0.0% |
| Barind | 1.6% | 13.9% | 63.9% | 19.7% | 0.8% |
| Diara | 0.0% | 13.1% | 79.8% | 7.1% | 0.0% |
| Malda | 0.6% | 12.4% | 70.0% | 16.7% | 0.3% |

Derived from Primary Survey result of 330 respondents

Table 3.13 shows the accessibility of pesticide outlets in the various regions of Malda.

Table 3.13: Accessibility of Pesticide Outlets in Malda: Region Wise

| | Very easy | Easy | Medium | Difficult | Very Difficult |
|---------------|------------------|-------------|---------------|------------------|-----------------------|
| Tal | 0.9% | 58.9% | 22.3% | 5.4% | 12.5% |
| Barind | 2.5% | 41.8% | 32.0% | 17.2% | 6.6% |
| Diara | 0.0% | 26.3% | 8.1% | 53.5% | 12.1% |
| Malda | 1.2% | 42.9% | 21.6% | 24.0% | 10.2% |

Derived from Primary Survey result of 333 respondents

We find that accessibility of pesticide outlets is an issue in Diara region which needs to be addressed for improving the usage of pesticide.

Table 3.14 shows the type of pesticide used in the regions of Malda. It shows that liquid pesticide is comparatively applied more in Diara. It is observed that half the farmers use both liquid and dust form of pesticide in the district.

Table 3.14: Type of Pesticide Used in Malda: Region Wise

| | Liquid | Dust | Both |
|--------|--------|-------|-------|
| Tal | 34.8% | 14.3% | 50.9% |
| Barind | 25.4% | 23.8% | 50.8% |
| Diara | 43.9% | 16.3% | 39.8% |
| Malda | 34.0% | 18.4% | 47.6% |

Derived from Primary Survey result of 332 respondents

Agricultural productivity is impacted by the quality of the seed used. Green Revolution in the country brought in better quality of seeds and today HYV seeds are the norm of the day.

Seeds:

Towards higher productivity seed is an important non-physical determinant. The quality, preservation, availability, proper culture are important tenets that requires attention. We discuss these aspects with a regional perspective in Malda.

Table 3.15 shows the number of seed depots and the density of the same in the Blocks of Malda. It shows that the availability is a problem in Barind region. Tal region has the maximum number of seed depots. This gives an indication that farmers tend to use their own harvest as seed for the next year in Barind.

Table 3.15: Number of Seed Depots in Malda: Block Wise (2000-01)

| | Number of Seed Depots | Seed depot per 1000 ha |
|---------------------|-----------------------|------------------------|
| Harishchandrapur I | 9 | 0.52 |
| Harishchandrapur II | 7 | 0.33 |
| Chanchal I | 12 | 0.76 |
| Chanchal II | 3 | 0.15 |
| Ratua I | 16 | 0.72 |
| Ratua II | 7 | 0.41 |
| Tal | 54 | 0.47 |
| Gazole | n.a. | n.a. |
| Bamngola | 3 | 0.15 |
| Habibpur | 2 | 0.05 |
| Old Malda | 1 | 0.04 |
| Barind | 6 | 0.05 |
| English Bazar | 5 | 0.20 |
| Manikchak | 2 | 0.06 |
| Kaliachak I | 6 | 0.58 |
| Kaliachak II | 3 | 0.14 |
| Kaliachak III | 5 | 0.21 |
| Diara | 21 | 0.19 |
| Malda | 81 | 0.23 |

Source: District Statistical Handbook, Malda, Bureau of Applied Economics & Statistics, Government of West Bengal, 2001

The other important aspect of seed is the farmers' awareness of seed treatment, proper preservation techniques and amount of seed to be used per acre of land. To understand the level of awareness of these parameters the farmers' awareness were categorised and the findings are presented in Table 3.16.

Table 3.16: Seed Awareness Level: Region Wise

| | Very High | High | Medium | Low |
|--------|-----------|-------|--------|------|
| Tal | 1.6% | 28.3% | 70.1% | 0.0% |
| Barind | 3.0% | 35.6% | 54.1% | 7.4% |
| Diara | 4.7% | 22.1% | 70.9% | 2.3% |
| Malda | 2.9% | 29.6% | 64.1% | 3.4% |

Derived from Primary Survey result of 348 respondents

Table 3.17 show the accessibility problems faced by the farmers in the different regions of Malda. It is seen that farmers in Diara region find it difficult to access the seed outlets while farmers in Barind find it easy to access. This is in contrast to the secondary data shown in Table 3.15.

Table 3.17: Accessibility of Seed Outlets in Malda: Region Wise

| | Very easy | Easy | Medium | Difficult | Very Difficult |
|--------|-----------|-------|--------|-----------|----------------|
| Tal | 1.5% | 51.5% | 20.8% | 13.1% | 13.1% |
| Barind | 0.0% | 46.7% | 27.4% | 19.3% | 6.7% |
| Diara | 0.0% | 17.4% | 5.8% | 65.1% | 11.6% |
| Malda | 0.6% | 41.3% | 19.7% | 28.2% | 10.3% |

Derived from Primary Survey result of 351 respondents

Point of purchase is an important determinant for seed as proper storage facility is not adhered to by local shops and vendors in the *hats*. Table 3.18 shows the point of purchase.

Table 3.18: Seed Purchasing Centre in Malda: Region Wise

| | Own | Agricultural co-operative shop | Open market | Certified Vendor | Others |
|--------|-------|--------------------------------|-------------|------------------|--------|
| Tal | 37.7% | 2.3% | 56.9% | 3.1% | 0.0% |
| Barind | 47.8% | 8.2% | 29.1% | 14.2% | 0.7% |
| Diara | 20.9% | 3.5% | 58.1% | 17.4% | 0.0% |
| Malda | 37.4% | 4.9% | 46.6% | 10.9% | 0.3% |

Derived from Primary Survey result of 350 respondents

It shows that 37.4 percent of the farmers in Malda use their own harvest as seed for the next year. Using the harvest is not suggested as the quality of the seed deteriorates if applied on the same soil. It is therefore suggested to rotate the seeds amongst the farmers of the village. The farmers are aware of the practice and its benefits but do not practice it. The findings show that the practice of using own seed is more prevalent in Barind region (47.8 percent).

Level of modernization:

Technology usage improves productivity and towards this objective policies are framed but the desired result is not observed in actuality as in the district traditional farming is still practiced. Table 3.19 shows the technology awareness level in the regions of the district. The findings are against our perception that the awareness level is low. In contrast it is seen that the awareness is moderate but due to non-availability of capital they are unable to use it.

Table 3.19: Technology Awareness Level: Region Wise

| | Very High | High | Medium | Low | Very low |
|---------------|-----------|-------|--------|-------|----------|
| Tal | 0.0% | 57.3% | 27.1% | 6.3% | 9.4% |
| Barind | 2.1% | 45.8% | 31.3% | 8.3% | 12.5% |
| Diara | 0.0% | 28.3% | 41.5% | 24.5% | 5.7% |
| Malda | 0.8% | 46.5% | 31.8% | 11.0% | 9.8% |

Derived from Primary Survey result of 245 respondents

Table-3.20 shows the level of usage of technology understanding the nature of farming practiced in Malda. We do not expect high level of technology usage. We do not expect harvester, thresher and winnower, to be used in the marginal and small operational holding of the district. So we tested the level of technology usage with in form of tractor, power tiller, pumps etc. Depending on the level of usage of these we have categorized the responded into 5 categories of technology usage.

Table 3.20: Technology Usage Level: Region Wise

| | Very High | High | Medium | Low | Very low |
|---------------|-----------|-------|--------|-------|----------|
| Tal | 0.8% | 30.8% | 27.7% | 3.1% | 37.7% |
| Barind | 10.4% | 28.1% | 10.4% | 12.6% | 38.5% |
| Diara | 0.0% | 19.4% | 8.7% | 12.6% | 59.2% |
| Malda | 4.1% | 26.6% | 16.0% | 9.2% | 44.0% |

Derived from Primary Survey result of 206 respondents

We find there is a wide disparity in the usage. While 53.2 percent of the respondents are found to be low and very low usage of technology 30.7 percent respondents use it considerable. Among the regions Diara region usage is less amount of technology. To understand the causes of low usage of technology, the low users were further probe and it is lack of capital as the only cause. The Table 3.21 shows the results of causes of low usage.

Table 3.21: Causes of Low Technology Usage: Region Wise

| | Hybrid | Local | Both |
|---------------|--------|-------|------|
| Tal | 100.0% | 0.0% | 0.0% |
| Barind | 96.8% | 0.0% | 3.2% |
| Diara | 95.5% | 4.5% | 0.0% |
| Malda | 97.8% | 1.1% | 1.1% |

Derived from Primary Survey result of 93 respondents

b. Population Characteristics

Geographers have shown time and again that population and its characteristics play important role in determining the overall productivity of land as in a agricultural dependent area, population pressure results in fragmentation of land and thereby operational holding is not economical. In this section we take a look at this non-physical determinant for the district of Malda and its regions.

Table 3.22 shows the population and sex ratio over the last six decade. It is seen that the population pressure on the land in the district has more than tripled. Another worrying feature is the declining sex ratio over the years. Only during the 90's it has improved to 947.5 female/thousand male.

Table 3.22: Population and Sex Ratio of Malda

| | Total Population | Male | Female | Sex Ratio |
|-------------|-------------------------|-------------|---------------|------------------|
| 1951 | 937,580 | 476,794 | 460,786 | 966.4 |
| 1961 | 1,221,923 | 621,990 | 599,933 | 964.5 |
| 1971 | 1,612,657 | 827,706 | 784,951 | 948.3 |
| 1981 | 2,031,871 | 1,042,498 | 989,373 | 949.0 |
| 1991 | 2,637,032 | 1,360,541 | 1,276,491 | 938.2 |
| 2001 | 3,290,160 | 1,689,409 | 1,600,751 | 947.5 |

Source: District Statistical Handbook, Malda, Bureau of Applied Economics & Statistics, Government of West Bengal, 2001

It is to be noted that the population growth has marginally decline from 2.68 percent (CARG 1951-61) to 2.24 percent (1991-2001). Though it has declined but the decline is not sufficient. It is observed that the high growth rate is mainly because of high birth rate in the rural areas and immigration from across the international and state border.

After analysing the problem due to the rising population we find the problem is further aggravated in the agriculture, as Malda is primarily a rural district with 92.7 percent population living in rural areas in 2001 (Table 3.23). This means there is no much industrial activity in the district and agriculture is the mainstay of the residents.

Table 3.23: Urbanisation in Malda

| | Urban | Rural | % of Rural Population |
|------|--------|---------|-----------------------|
| 1951 | 35161 | 902419 | 96.2 |
| 1961 | 50785 | 1171138 | 95.8 |
| 1971 | 68026 | 1544631 | 95.8 |
| 1981 | 97196 | 1934675 | 95.2 |
| 1991 | 186537 | 2450495 | 92.9 |
| 2001 | 240915 | 3049245 | 92.7 |

Source: District Statistical Handbook, Malda, Bureau of Applied Economics & Statistics, Government of West Bengal, 2001

Analysing Table 3.24, which shows the block wise population distribution for 1991 we find the density at 736 person/Km², is really high with only two blocks having urban centres viz. Old Malda and English Bazar.

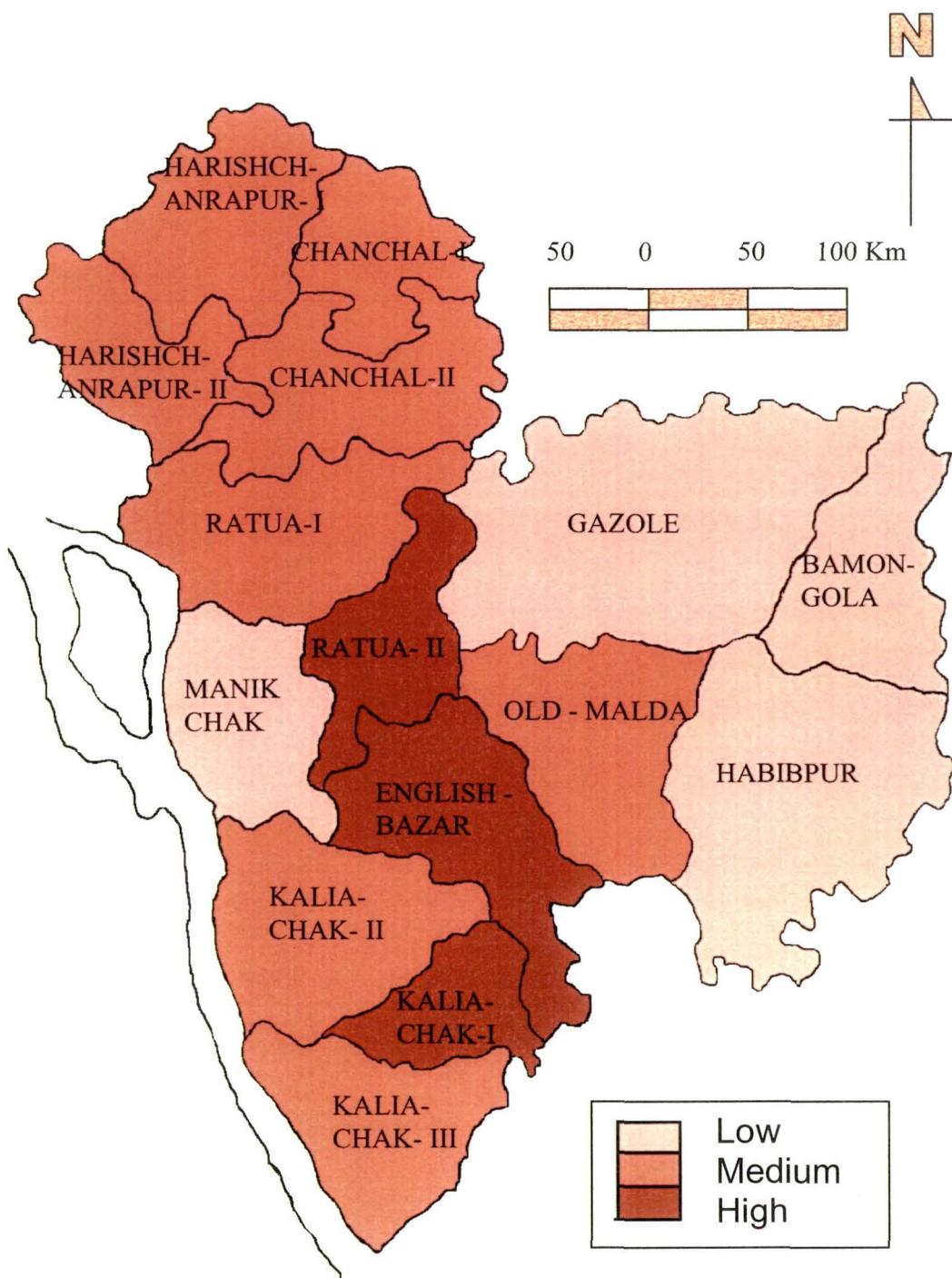
Table 3.24: Population Density in Malda: Block Wise (1991)

| Block/Region | Population | Density |
|---------------------|------------------|--------------|
| Harishchandrapur I | 129,829 | 757.5 |
| Harishchandrapur II | 157,077 | 723.1 |
| Chanchal I | 143,288 | 884.1 |
| Chanchal II | 132,697 | 646.6 |
| Ratua I | 173,655 | 771.2 |
| Ratua II | 125,762 | 1,241.6 |
| Tal | 862,308 | 796.7 |
| Gazole | 233,139 | 453.8 |
| Bamongola | 107,579 | 521.7 |
| Habibpur | 168,397 | 424.1 |
| Old Malda | 146,020 | 631.5 |
| Barind | 655,135 | 485.9 |
| English Bazar | 319,638 | 1,204.0 |
| Manikchak | 177,572 | 561.2 |
| Kaliachak I | 243,787 | 2,286.9 |
| Kaliachak II | 163,871 | 783.4 |
| Kaliachak III | 214,721 | 842.9 |
| Diara | 1,119,589 | 971.5 |
| Malda | 2,637,032 | 736.0 |

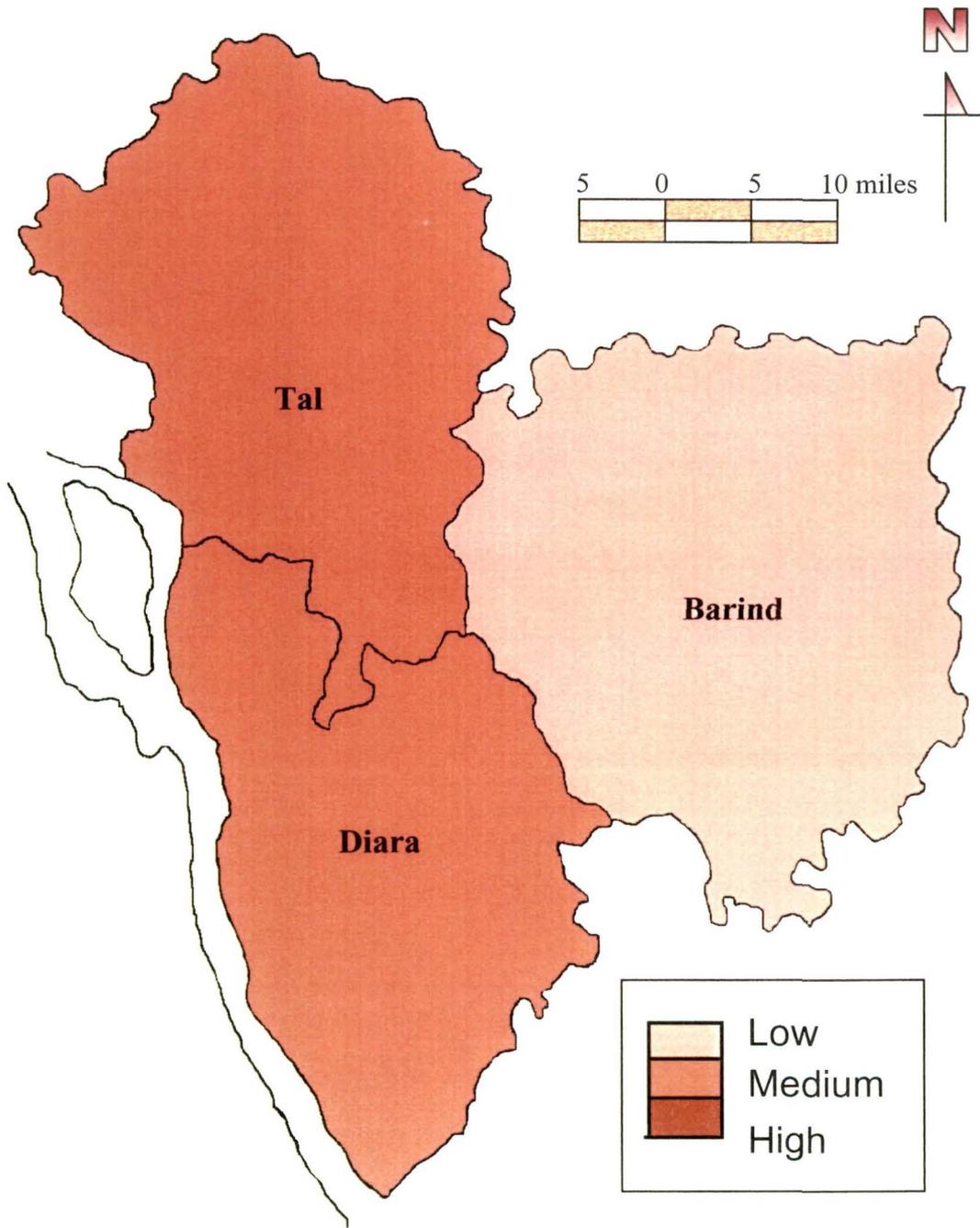
Source: District Statistical Handbook, Malda, Bureau of Applied Economics & Statistics, Government of West Bengal, 2001

We have categorised the blocks into high high, medium low density block and shown them in Map 3.2 for the Blocks and Map 3.3 for the regions of Malda.

Map No: 3.2
POPULATION DENSITY OF MALDA: BLOCK WISE
(1991)



Map No: 3.3
POPULATION DENSITY OF MALDA: REGION WISE
(1991)



The categorisation has been done based on the limits defined by the average +/- 0.5 standard deviation of the individual block densities.

It is seen that the central blocks of Ratua-II, English Bazar and Kaliachak-I have high density while eastern blocks of Gazole, Bamongola and Habibpur, and Manikchak from the west have low population density.

Map 3.3, which shows the population density at regional level, shows that Barind region is a comparatively low-density region.

Table 3.25 shows the region wise population distribution of Malda. It is seen that Malda has primarily two religion Hindu and Muslim.

Table 3.25: Population by Religion in Malda (1991)

| Religion | Number | % to Total Population |
|--------------|------------------|-----------------------|
| Hindu | 1,377,844 | 52.25 |
| Muslim | 1,252,292 | 47.49 |
| Christian | 5,118 | 0.19 |
| Sikhs | 183 | 0.01 |
| Buddhists | 64 | 0.00 |
| Jains | 224 | 0.01 |
| Others | 1,307 | 0.05 |
| Total | 2,637,032 | 100 |

Source: District Statistical Handbook, Malda, Bureau of Applied Economics & Statistics, Government of West Bengal, 2001

From the primary survey we found the religion wise population composition for the regions, as shown in Table 3.26. We find that the Muslim population is more concentrated in the Tal region.

Table 3.26: Population by Religion: Region Wise

| | Hindu | Muslim | Christian |
|--------|-------|--------|-----------|
| Tal | 59.2% | 40.8% | 0.0% |
| Barind | 68.9% | 27.4% | 3.7% |
| Diara | 76.7% | 23.3% | 0.0% |
| Malda | 67.7% | 31.0% | 1.4% |

Derived from Primary Survey result of 368 respondents

Table 3.27 shows the distribution of population by scheduled categories. It is observed that the share of scheduled caste and scheduled tribe is comparatively more in Barind region.

Table 3.27: Distribution of Population by SC and ST (1991)

| Blocks | Scheduled Caste | Scheduled Tribe | Total |
|---------------------|-----------------|-----------------|---------------|
| Harishchandrapur I | 32737 | 2840 | 35577 |
| Harishchandrapur II | 19060 | 3424 | 22484 |
| Chanchal I | 21177 | 586 | 21763 |
| Chanchal II | 13573 | 10353 | 23926 |
| Ratua I | 15567 | 3990 | 19557 |
| Ratua II | 11028 | 1598 | 12626 |
| Tal. | 113142 | 22791 | 135933 |
| Gazole | 78507 | 50153 | 128660 |
| Bamongola | 54493 | 22637 | 77130 |
| Habibpur | 78608 | 52789 | 131397 |
| Old Malda | 42858 | 17759 | 60617 |
| Barind | 254466 | 143338 | 397804 |
| English Bazar | 47129 | 4914 | 52043 |
| Manikchak | 21468 | 147 | 21615 |
| Kaliachak I | 7484 | 16 | 7500 |
| Kaliachak II | 15008 | 6 | 15014 |
| Kaliachak III | 19199 | 114 | 19313 |
| Diara | 110288 | 5197 | 115485 |
| Malda | 477896 | 171326 | 649222 |

Source: District Statistical Handbook, Malda, Bureau of Applied Economics & Statistics, Government of West Bengal, 2001

When we analyse the above information with the help of the primary survey results for individual regions, it ratifies the results as 46.2 percent of Barind's population is found to be of scheduled caste type.

Table 3.28: Distribution of Population in Malda: Region Wise

| | General | SC | ST | OBC |
|---------------|---------|-------|------|-------|
| Tal. | 92.2% | 7.8% | 0.0% | 0.0% |
| Barind | 23.7% | 46.2% | 3.2% | 26.9% |
| Diara | 32.9% | 17.7% | 0.0% | 49.4% |
| Malda | 47.8% | 25.3% | 1.2% | 25.7% |

Derived from Primary Survey result of 249 Hindu respondent

Another important population characteristic is the family size. Analysing the same for Malda district (Table 3.29) we find that family size is almost same across regions but there is a disparity among the blocks. While Kaliachak-III has the highest family size, it is lowest for English Bazar.

Table 3.29: Average Family Size in Malda: Block Wise (1991)

| | Population | No. of Household | Average Family Size |
|---------------------|------------------|------------------|---------------------|
| Harishchandrapur I | 129,829 | 26310 | 4.93 |
| Harishchandrapur II | 157,077 | 26331 | 5.97 |
| Chanchal I | 143,288 | 29337 | 4.88 |
| Chanchal II | 132,697 | 24354 | 5.45 |
| Ratua I | 173,655 | 29930 | 5.80 |
| Ratua II | 125,762 | 23354 | 5.39 |
| Tal | 862,308 | 159616 | 5.40 |
| Gazole | 233,139 | 44677 | 5.22 |
| Bamongola | 107,579 | 20911 | 5.14 |
| Habibpur | 168,397 | 33997 | 4.95 |
| Old Malda | 146,020 | 25261 | 5.78 |
| Barind | 655,135 | 124846 | 5.25 |
| English Bazar | 319,638 | 69870 | 4.57 |
| Manikchak | 177,572 | 31357 | 5.66 |
| Kaliachak I | 243,787 | 41429 | 5.88 |
| Kaliachak II | 163,871 | 28820 | 5.69 |
| Kaliachak III | 214,721 | 34997 | 6.14 |
| Diara | 1,119,589 | 206473 | 5.42 |
| Malda | 2,637,032 | 490935 | 5.37 |

Source: District Statistical Handbook, Malda, Bureau of Applied Economics & Statistics, Government of West Bengal, 2001

We have also analysed the average family size by religion for the regions of Malda through our primary survey. We find that the overall average family size is comparatively high in Diara region but in all three region the family size for Muslims is higher than the Hindu families.

Table 3.30: Average Family Size: Region wise

| | Hindu | Muslim | Christian | Overall |
|--------|-------|--------|-----------|---------|
| Tal | 5.4 | 6.5 | | 5.8 |
| Barind | 6.7 | 9.2 | 5.4 | 7.3 |
| Diara | 5.8 | 8.4 | | 6.4 |
| Malda | 6.0 | 7.8 | 5.4 | 6.5 |

Derived from Primary Survey result of 368 respondents

Table 3.31 shows the literacy rate for the individual blocks of Rural Malda. It is seen that the overall literacy rate in the district varies between 27.49 percent (Kaliachak-III) and 37.52 percent (Bamongola). The majority of the Blocks' literacy rate lie around 31 percent.

Table 3.31: Literacy Rate in Malda (Rural)

| | Male | Female | Total |
|---------------------|--------------|--------------|--------------|
| Harishchandrapur I | 39.53 | 19.99 | 30.10 |
| Harishchandrapur II | 39.37 | 18.86 | 29.46 |
| Chanchal I | 48.82 | 29.93 | 39.76 |
| Chanchal II | 40.75 | 21.93 | 31.62 |
| Ratua I | 41.94 | 20.78 | 31.77 |
| Ratua II | 39.56 | 20.92 | 30.54 |
| Gazole | 41.59 | 19.98 | 31.07 |
| Bamongola | 49.27 | 25.07 | 37.52 |
| Habibpur | 45.29 | 25.07 | 33.43 |
| Old Malda | 43.80 | 21.72 | 33.30 |
| English Bazar | 45.24 | 25.73 | 35.85 |
| Manikchak | 44.33 | 18.23 | 31.70 |
| Kaliachak I | 44.97 | 24.55 | 35.09 |
| Kaliachak II | 41.52 | 21.57 | 31.92 |
| Kaliachak III | 37.77 | 16.21 | 27.49 |
| Malda | 42.80 | 21.60 | 32.57 |

Source: District Statistical Handbook, Malda, Bureau of Applied Economics & Statistics, Government of West Bengal, 2001

After observing the regional variation in the literacy rate of Rural Malda we here analyse the education level for the regions. It is seen in Table 3.32 that the number of illiterates and primary educated respondents are comparatively more in Barind region (63 percent). It is lowest in the Tal region (35.9 percent).

Table 3.32: Education Level in Malda: Region Wise

| | Illiterate | Primary education | Secondary education | Higher secondary Education | Graduate and above |
|--------------|--------------|-------------------|---------------------|----------------------------|--------------------|
| Tal | 23.4% | 12.5% | 44.5% | 6.3% | 13.3% |
| Barind | 34.1% | 28.9% | 28.1% | 5.9% | 3.0% |
| Diara | 18.4% | 24.3% | 51.5% | 2.9% | 2.9% |
| Malda | 26.0% | 21.9% | 40.4% | 5.2% | 6.6% |

Derived from Primary Survey result of 366 respondents

Table 3.33 shows the distribution of population by sex and age group.

Table 3.33: Distribution of Population by Sex and Age Group in Malda (1991)

| Age Group | Absolutes ('000) | | | Share (%) | | |
|-----------------|------------------|---------------|---------------|--------------|--------------|--------------|
| | Male | Female | Total | Male | Female | Total |
| 0-4 | 191.5 | 187 | 378.5 | 14.1 | 14.6 | 14.4 |
| 5-9 | 198.9 | 188.5 | 387.4 | 14.6 | 14.8 | 14.7 |
| 10-14 | 166.1 | 154 | 320.1 | 12.2 | 12.1 | 12.1 |
| 15-19 | 122.5 | 111.9 | 234.4 | 9.0 | 8.8 | 8.9 |
| 20-24 | 112.1 | 112.7 | 224.8 | 8.2 | 8.8 | 8.5 |
| 25-29 | 106.3 | 113.8 | 220.1 | 7.8 | 8.9 | 8.3 |
| 30-39 | 187.3 | 164.3 | 351.6 | 13.8 | 12.9 | 13.3 |
| 40-49 | 116.8 | 101.7 | 218.5 | 8.6 | 8.0 | 8.3 |
| 50-59 | 71.8 | 64.5 | 136.3 | 5.3 | 5.1 | 5.2 |
| 60+ | 70.7 | 64 | 134.7 | 5.2 | 5.0 | 5.1 |
| Age not stated | 16.6 | 14.1 | 30.7 | 1.2 | 1.1 | 1.2 |
| All Ages | 1360.6 | 1276.5 | 2637.1 | 100.0 | 100.0 | 100.0 |

Source: District Statistical Handbook, Malda, Bureau of Applied Economics & Statistics, Government of West Bengal, 2001

It is seen that 50 percent of the population in the district are in the age group below 19 years. If we include the number of people above 60 years then we find the ratio of mouth to feed to hands to work is 2.26: 1. This age composition has serious implication, as in near future the pressure on land is likely to increase in folds if no other job opportunity is created for the youth. But one positive indication is that the age composition by sex do not show any disparity.

After analysing the population parameter we find the pressure on land is increasing in the district and will be a serious problem in years to come.

c. Cultural Factors

Launching a direct attack on technical problems alone, i.e. extension work aimed at the use of improved technical methods and of modern agricultural requisites, will by itself be not sufficient to ensure agricultural development. Simultaneous attention must be given to other problems which at the moment are impediments to the rapid development of agricultural production. Among these problems some are sociological. The four most important sociological impediments in developing efficient agriculture are: i. Ownership holding, ii. Tenural arrangement, iii. Farm family characteristics iv. Labour force. These are important enough to be analysed individually. In this section we analyse these factors for the district of Malda.

Ownership holding:

Considering the long period for which cultivation has been carried on in Malda the increase in population and the laws of succession, one can imagine their combined effect on land holdings. The laws of succession result in the sub-division and fragmentation of holdings. When the father dies, the land is divided equally among all his heirs. Each successor insists on having a share from each location and piece of land, resulting in further fragmentation of land. It is a wasteful method of land utilization and many improved agricultural practices cannot be adopted (Randhawa, 1974). The disadvantages of fragmentation and scattered holdings are well known: it puts a large proportion of land outside the possibility of effective cultivation or economic development; it wastes time in the need to supervise; it makes capital duplication necessary; the small plots are difficult to work with tractors; weed and pest control is made difficult, and it limits mechanization and experimentation. On the whole, it is a serious impediment to agricultural progress and acts as a deterrent to a full utilization of land and farmforce.

Table 3.34 and Table 3.35 shows the area and number of operational holdings in the district for individual blocks. The data used is from the Agricultural Census of 1995-96. These tables show that maximum farmers hold land less 0.5 hectare. Fig 3.2 shows the disparity of holding as 49.8 percent of farmers hold only 15.8 percent of the total cropped area and including the next 25.8 percentage of the holders the cumulative holding moves up to only 24.1 percent.

Table 3.34 Area of Operational Holding in Malda: Block Wise (1995-96)

| Area of Holdings | Below 0.5 | 0.5-1.0 | 1.0-2.0 | 2.0-3.0 | 3.0-4.0 | 4.0-5.0 | 5.0-7.5 | 7.5-10.0 | 10.0-20.0 | Total |
|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|------------|---------------|
| Harishchandrapur I | 3392 | 5063 | 3176 | 2245 | 811 | 665 | 549 | 128 | 52 | 16081 |
| Harishchandrapur II | 3292 | 5029 | 8145 | 2902 | 1017 | 435 | 356 | 132 | 104 | 21412 |
| Chanchal I | 2601 | 3858 | 4894 | 2114 | 723 | 390 | 322 | 172 | | 15074 |
| Chanchal II | 3674 | 5679 | 5098 | 2480 | 792 | 483 | 485 | 44 | | 18735 |
| Ratua I | 2581 | 3908 | 3709 | 4128 | 1377 | 2231 | 1934 | 216 | 104 | 20188 |
| Ratua II | 1892 | 2838 | 4079 | 2177 | 758 | 597 | 550 | 44 | | 12935 |
| Tal | 17432 | 26375 | 29101 | 16046 | 5478 | 4801 | 4196 | 736 | 260 | 104425 |
| Gazole | 5466 | 8685 | 15290 | 8522 | 2835 | 2277 | 1973 | 436 | 156 | 45640 |
| Bamongola | 2451 | 3813 | 5154 | 4030 | 1420 | 1205 | 1005 | 260 | 103 | 19441 |
| Habibpur | 4573 | 7311 | 12506 | 5735 | 1852 | 1633 | 1477 | 308 | 188 | 35583 |
| Old Malda | 2657 | 4152 | 5455 | 2228 | 759 | 938 | 744 | 216 | 52 | 17201 |
| Barind | 15147 | 23961 | 38405 | 20515 | 6866 | 6053 | 5199 | 1220 | 499 | 117865 |
| English Bazar | 3499 | 5183 | 6417 | 3280 | 1138 | 1678 | 1388 | 348 | | 22931 |
| Manikchak | 5182 | 6192 | 4368 | 2069 | 706 | 967 | 871 | 88 | | 20443 |
| Kaliachak I | 1414 | 5124 | 1594 | 1050 | 533 | 285 | 408 | 132 | 52 | 10592 |
| Kaliachak II | 2998 | 2948 | 2084 | 1400 | 310 | 660 | 430 | 44 | | 10874 |
| Kaliachak III | 1872 | 2796 | 3703 | 2844 | 998 | 1105 | 903 | 132 | 104 | 14457 |
| Diara | 14965 | 22243 | 18166 | 10643 | 3685 | 4695 | 4000 | 744 | 156 | 79297 |
| Malda | 47544 | 72579 | 85672 | 47204 | 16029 | 15549 | 13395 | 2700 | 915 | 301587 |

Source: Agricultural Census, 1995-96

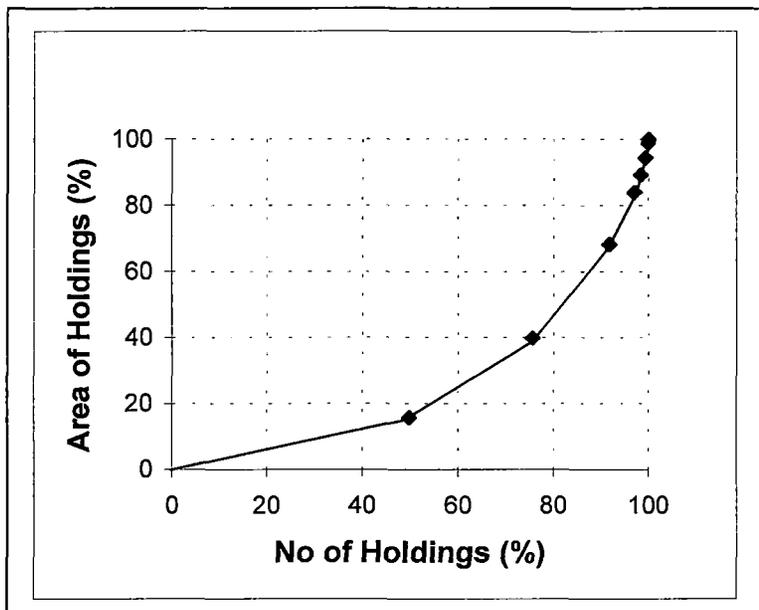
Table 3.35: Number of Operational Holding in Malda: Block Wise (1995-96)

| No of Holdings | Below 0.5 | 0.5-1.0 | 1.0-2.0 | 2.0-3.0 | 3.0-4.0 | 4.0-5.0 | 5.0-7.5 | 7.5-10.0 | 10.0-20.0 | Total |
|-----------------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|------------------|---------------|
| Harishchandrapur I | 12640 | 6340 | 2125 | 880 | 235 | 145 | 85 | 15 | 5 | 22470 |
| Harishchandrapur II | 12465 | 6295 | 5455 | 1130 | 295 | 95 | 55 | 15 | 10 | 25815 |
| Chanchal I | 9830 | 4825 | 3280 | 825 | 210 | 85 | 50 | 20 | | 19125 |
| Chanchal II | 13900 | 7120 | 3405 | 965 | 230 | 105 | 75 | 5 | | 25805 |
| Tal | 65905 | 33020 | 19485 | 6250 | 1590 | 1045 | 650 | 85 | 25 | 128055 |
| Ratua I | 9845 | 4890 | 2485 | 1605 | 400 | 485 | 300 | 25 | 10 | 20045 |
| Ratua II | 7225 | 3550 | 2735 | 845 | 220 | 130 | 85 | 5 | | 14795 |
| Gazole | 19495 | 10940 | 10115 | 3340 | 820 | 500 | 305 | 50 | 15 | 45580 |
| Bamongola | 8540 | 4805 | 3410 | 1595 | 410 | 265 | 155 | 30 | 10 | 19220 |
| Habibpur | 15420 | 9240 | 8220 | 2262 | 534 | 360 | 228 | 36 | 18 | 36318 |
| Old Malda | 9675 | 5220 | 3625 | 875 | 220 | 205 | 115 | 25 | 5 | 19965 |
| Barind | 53130 | 30205 | 25370 | 8072 | 1984 | 1330 | 803 | 141 | 48 | 121083 |
| English Bazar | 13105 | 6485 | 4295 | 1280 | 330 | 365 | 215 | 40 | | 26115 |
| Manikchak | 17125 | 7740 | 2930 | 805 | 205 | 210 | 135 | 10 | | 29160 |
| Kaliachak I | 10625 | 6405 | 1070 | 407 | 155 | 64 | 65 | 15 | 5 | 18811 |
| Kaliachak II | 8855 | 3685 | 1400 | 543 | 90 | 141 | 65 | 5 | | 14784 |
| Kaliachak III | 7145 | 3495 | 2485 | 1105 | 290 | 240 | 140 | 15 | 10 | 14925 |
| Diara | 56855 | 27810 | 12180 | 4140 | 1070 | 1020 | 620 | 85 | 15 | 103795 |
| Malda | 175890 | 91035 | 57035 | 18462 | 4644 | 3395 | 2073 | 311 | 88 | 352933 |

Source: Agricultural Census, 1995-96

Thus we find that operational size in the district is not congenial for effective farm practices.

Fig 3.2: Lorenz curve: Area of Holdings vs No. of Holders



The situation is similar across the blocks and regions as in Tal lowest 51.5 percent peasants occupy 16.7 percent of the land and in Barind it is 43.9 percent holding 12.9 percent. The situation in Diara is no different as 54.8 percent of cultivators hold 18.9 percent of land.

Secured Land Tenure:

While in the narrower sense land tenure may be described as the body of rules which govern the allocation and the apportionment of produce, in the wider sense it covers the whole relationship of man to the soil. This relationship, on the one hand, transforms the land and, on the other, causes human beings to live together in households and farming communities. A three-tiered structure characterizes the land tenure organization in the villages of Malda, comprising owner-cultivators, tenant-cultivators (with varying degree of security, but often with none) and lessee-cultivators.

The way in which the land is held is also a factor in determining how it is operated, though less so now than formerly; for tenants have gradually been liberated from many restrictions under which they farmed prior to the 'fifties. Various measures have made the tenant-cultivators free to crop arable land as they wish, particularly the occupancy tenants. Proper utilization of land can hardly be realized and agricultural output rose unless the actual cultivators of the land have the incentive to raise the productivity per unit area. They will not have the incentive unless they are able to reap the benefits of increased production due to their additional efforts in the form of soil capital.

Table 3.36: Tenorial Pattern of Land in Malda: Region Wise

| | Owned | Leased Out | Leased | Own/ Leased out | Own/ Leased in |
|-----------|-------|------------|--------|-----------------|----------------|
| 1. Tal | 96.9% | 0.0% | 0.8% | 0.0% | 2.4% |
| 2. Barind | 87.4% | 2.2% | 6.7% | 3.7% | 0.0% |
| 3. Diara | 93.2% | 1.9% | 1.9% | 1.0% | 1.9% |
| Malda | 92.3% | 1.4% | 3.3% | 1.6% | 1.4% |

Derived from Primary Survey result of 365 respondents

Table 3.36 shows the region wise tenorial pattern of land in the district. It is seen that the number of landless agriculturists are minimal in the district. 92.3 percent of the respondents own their own land. But at regional level the situation in Barind is not so. Here only 87.4 percent of the respondents own their land. 6.7 percent of the respondents farm on leased land.

Farm Family Characteristics:

The relationship between the size of operational holding and population characteristics is an interesting area to study. When we cross tab the religion with the average size of holding, (Table 3.37) we find the Hindus to have higher (8.9 bigha) farm size than those of Muslims (7.6 bigha). But the holding pattern has variation among regions. Barind has comparatively large average holding of 10.1 bigha while Diara has 9.6 bigha. Average holding of Tal region is of only 6.0 bigha. The disparity among Hindus and Muslims of Barind region is wide while in Diara it is the lowest.

Table 3.37: Average Land Holding by Religion in Malda: Region Wise

| | Hindu | Muslim | Christian | Total |
|-----------|-------|--------|-----------|-------|
| 1. Tal | 4.1 | 8.6 | | 6.0 |
| 2. Barind | 11.3 | 4.8 | 8.6 | 10.1 |
| 3. Diara | 10.1 | 7.9 | | 9.6 |
| Malda | 8.9 | 7.6 | 8.6 | 8.5 |

Derived from Primary Survey result of 365 respondents

Table 3.38 shows the average holding of Hindus with the respect to caste. Against our perception that average ownership holding for general caste will be more, it is found to be the least. But when we analyse the regions individually we find in Barind region the size of the ST and OBC ownership holding is less than the general category, while in Tal and Diara the average holding of SC's are less than the general caste.

Table 3.38: Average Land Holding by Caste of Hindus in Malda: Region Wise

| | General | SC | ST | OBC |
|-----------|---------|------|------|------|
| 1. Tal | 4.2 | 2.5 | | |
| 2. Barind | 11.9 | 14.3 | 10.0 | 7.4 |
| 3. Diara | 8.7 | 7.7 | | 11.8 |
| Malda | 6.8 | 11.8 | 10.0 | 9.6 |

Derived from Primary Survey result of 249 respondents

Labour:

To understand the labour situation of Malda we considered the Government of India data on workers. Using the census definition of main workers, marginal workers and non-workers i.e.

Main workers: Main workers are those who had worked for the major part of the year preceding the date of enumeration, i.e those who were engaged in any economically productive activity for 183 days or more.

Marginal workers: Marginal workers are those who worked any time in the year preceding the date of enumeration but did not work for the major part of the year, i.e those who worked for less than 183 days.

Non-workers: Non-workers are those who did not work any time at all in the year preceding the date of enumeration.

Table 3.39: Distribution of Population as Workers, Non-workers in Malda: Block Wise (1991)

| | Total Main Worker | | Marginal Workers | | Non Workers | | Population |
|---------------------|-------------------|-------------|------------------|------------|----------------|-------------|----------------|
| | Absolute | (%) | Absolute | (%) | Absolute | (%) | |
| Harishchandrapur I | 41455 | 31.9 | 1450 | 1.1 | 86924 | 67.0 | 129829 |
| Harishchandrapur II | 47582 | 30.3 | 3321 | 2.1 | 106174 | 67.6 | 157077 |
| Chanchal I | 43295 | 30.2 | 2697 | 1.9 | 97296 | 67.9 | 143288 |
| Chanchal II | 42222 | 31.8 | 2951 | 2.2 | 87524 | 66.0 | 132697 |
| Ratua I | 48315 | 27.8 | 3727 | 2.1 | 121613 | 70.0 | 173655 |
| Ratua II | 36300 | 28.9 | 1327 | 1.1 | 88135 | 70.1 | 125762 |
| Tal | 259169 | 30.1 | 15473 | 1.8 | 587666 | 68.2 | 862308 |
| Gazole | 78713 | 33.8 | 6948 | 3.0 | 147478 | 63.3 | 233139 |
| Bamongola | 38281 | 35.6 | 3636 | 3.4 | 65662 | 61.0 | 107579 |
| Habibpur | 65199 | 38.7 | 7966 | 4.7 | 95232 | 56.6 | 168397 |
| Old Malda | 47866 | 32.8 | 4138 | 2.8 | 94016 | 64.4 | 146020 |
| Barind | 230059 | 35.1 | 22688 | 3.5 | 402388 | 61.4 | 655135 |
| English Bazar | 90100 | 28.2 | 5127 | 1.6 | 224411 | 70.2 | 319638 |
| Manikchak | 54947 | 30.9 | 5999 | 3.4 | 116626 | 65.7 | 177572 |
| Kaliachak I | 71291 | 29.2 | 17440 | 7.2 | 155056 | 63.6 | 243787 |
| Kaliachak II | 54543 | 33.3 | 6806 | 4.2 | 102522 | 62.6 | 163871 |
| Kaliachak III | 74299 | 34.6 | 6886 | 3.2 | 133536 | 62.2 | 214721 |
| Diara | 345180 | 30.8 | 42258 | 3.8 | 732151 | 65.4 | 1119589 |
| Malda | 834408 | 31.6 | 80419 | 3.0 | 1722205 | 65.3 | 2637032 |

Source: Government of India Census, 1991

We find only one third of the population working. Table 3.39 shows the distribution in the blocks and regions. We find total main workers to be high in Barind (35.1 percent).

Table 3.40 shows the distribution of main workers in to different types at Block level. The pattern is distinctly different for Diara region, particularly for English Bazar. This is primarily because of large urban population in he block. Its seen that Harishchandrapur II has the maximum number of cultivators while Manikchak has the maximum number of agricultural labour.

Table 3.40: Distribution of Main Workers in Malda: Block Wise (1991)

| | Cultivators | | Agricultural Labourers | | House Hold Industry | | Other Workers | |
|---------------------|---------------|-------------|------------------------|-------------|---------------------|------------|---------------|-------------|
| | Population | Percentage | Population | Percentage | Population | Percentage | Population | Percentage |
| Harishchandrapur I | 15766 | 38.0 | 19395 | 46.8 | 1031 | 2.5 | 5263 | 12.7 |
| Harishchandrapur II | 24011 | 50.5 | 17372 | 36.5 | 828 | 1.7 | 5371 | 11.3 |
| Chanchal I | 16956 | 39.2 | 16409 | 37.9 | 1155 | 2.7 | 8775 | 20.3 |
| Chanchal II | 20103 | 47.6 | 16736 | 39.6 | 655 | 1.6 | 4728 | 11.2 |
| Ratua I | 20957 | 43.4 | 18978 | 39.3 | 681 | 1.4 | 7699 | 15.9 |
| Ratua II | 13464 | 37.1 | 16528 | 45.5 | 426 | 1.2 | 5882 | 16.2 |
| Tal | 111257 | 42.9 | 105418 | 40.7 | 4776 | 1.8 | 37718 | 14.6 |
| Gazole | 38337 | 48.7 | 30475 | 38.7 | 1677 | 2.1 | 8224 | 10.4 |
| Bamongola | 17935 | 46.9 | 15012 | 39.2 | 691 | 1.8 | 4643 | 12.1 |
| Habibpur | 27674 | 42.4 | 24681 | 37.9 | 2109 | 3.2 | 10735 | 16.5 |
| Old Malda | 14314 | 29.9 | 13429 | 28.1 | 2292 | 4.8 | 17631 | 36.8 |
| Barind | 98260 | 42.7 | 83597 | 36.3 | 6769 | 2.9 | 41233 | 17.9 |
| English Bazar | 11055 | 12.3 | 19717 | 21.9 | 4246 | 4.7 | 54673 | 60.7 |
| Manikchak | 15788 | 28.7 | 26517 | 48.3 | 3426 | 6.2 | 9216 | 16.8 |
| Kaliachak I | 13015 | 18.3 | 20746 | 29.1 | 6194 | 8.7 | 31336 | 44.0 |
| Kaliachak II | 15330 | 28.1 | 18021 | 33.0 | 3074 | 5.6 | 18119 | 33.2 |
| Kaliachak III | 23809 | 32.0 | 14362 | 19.3 | 1136 | 1.5 | 34992 | 47.1 |
| Diara | 78997 | 22.9 | 99363 | 28.8 | 18076 | 5.2 | 148336 | 43.0 |
| Malda | 288514 | 34.6 | 288378 | 34.6 | 29621 | 3.5 | 227287 | 27.2 |

Source: Government of India Census, 1991

While interacting with the farmers in the district we find the problem of labour supply, specially during the harvesting and sowing season. Table 3.41 shows the level of availability of labour in the region. It is seen that 39.5 percent of the respondents face the problem of labour supply severely. This is likely to impact the overall productivity adversely.

Table 3.41: Availability of Labour in Malda: Region Wise

| | Very easy | Easy | Medium | Difficult | Very Difficult |
|---------------|-----------|-------|--------|-----------|----------------|
| Tal | | 24.4% | 36.2% | 39.4% | |
| Barind | 3.7% | 16.3% | 57.8% | 22.2% | |
| Diara | | 2.9% | 34.3% | 60.8% | 2.0% |
| Malda | 1.4% | 15.4% | 43.7% | 39.0% | 0.5% |

Derived from Primary Survey result of 364 respondents

This problem is faced as the farmers use hired labours in seasons when labour demand rises. Table 3.42 shows the composition of the type of labour. It is noticed that almost cent percent cultivators use hired labour and this practice is spread across regions. In Table 3.40 we had seen that of the total workforce 34.6 percent work as agricultural labour. During the lean season these labourers work in construction industry in the nearby towns.

Table 3.42: Type of Labour in Malda: Region Wise

| | Hired | Family | Child | Hired/Family |
|---------------|-------|--------|-------|--------------|
| Tal | 40.5% | 1.6% | | 57.9% |
| Barind | 30.6% | 0.8% | 1.6% | 66.9% |
| Diara | 32.4% | | | 67.6% |
| Malda | 34.7% | 0.9% | 0.6% | 63.9% |

Derived from Primary Survey result of 352 respondents

Another interesting feature of labour in the district is the mode of payment adopted to pay the agricultural labour. Table 3.42 shows the findings. 63.1 percent of the respondents are found to be paid / pay in cash while a major chunk of 33.3 percent are paid with cereals along-with cash

Table 3.43: Mode of Payment of Labour in Malda: Region Wise

| | Cash | Cash/Cereals | Cash/Others |
|---------------|--------|--------------|-------------|
| Tal | 74.80% | 25.20% | 0.00% |
| Barind | 88.89% | 11.11% | 0.00% |
| Diara | 13.86% | 73.27% | 12.87% |
| Malda | 63.09% | 33.33% | 3.58% |

Derived from Primary Survey result of 363 respondents

d) Infrastructural Services: Infrastructural services viz. marketing facilities, transport and accessibilities, credit facilities etc. are essential for modern farm operations. These factors individually or collectively influence the agricultural patterns and productivity. Therefore, these factors are important to analyse, to understand the variability of agricultural productivity and to propose measures to increase productivity.

Marketing Facilities:

Market is a center of business activities, which direct the flow of goods from producer to consumer. An effective and efficient marketing system from the point of a view of farmer is one, which facilitates easy and smooth channeling of the farm produce at right price and at a time when the producer so desires.

Now, we discuss the present marketing pattern of the major crops in the district.

Paddy and Rice:

The progressive cultivators generally sell their paddy to the wholesale traders in the assembling markets and also to rice mill in the district. The small growers sell their paddy to village Mahajans or Farias who visit door to door in the village. The itinerant merchants very often process the paddy into rice in husking mills and sale the rice to the local traders, retailers and consumers. The small and marginal farmers sell their paddy in the nearest *hat* or to the Farias immediately after the harvest for urgent need of cash to repay the loan or advance.

Jute:

Farias, unemployed youths of cultivators' family and also some growers cum-Farias purchase jute at village level visiting door to door and sale the same to the big traders and their agents in the primary markets. They also sale to J.C.I. when the price offered by the J.C.I. is profitable as compared to that offered by the traders. The progressive farmers also bring their jute in the primary market for direct sale to traders and agent of jute mills. The traders send the jute, to jute mills at Calcutta after grading and bailing the same in bailing press installed at their premises. J.C.I., C.A.D.P. and co-operative are the active institutions in marketing of jute in the district.

Vegetables:

The small Farias usually bring the vegetable from farm to primary assembling markets where the stock are sold to wholesalers who in turn sale to retailers in the consumers markets in towns of the district. Vegetables are brought to the markets or *hats* from the farm in bullock carts and *tanga*. The *Aratdars* in the secondary market virtually control the price of vegetable in the local markets.

Oil Seeds:

Traders, their agents, village merchants and Farias procure oil seeds from village farms or primary markets. The stock thus procured is sold to wholesale traders and agents of oil mills in the secondary market in the district

Mango:

Mango is one of the most important commercial crops of the district. Mango orchards are sold even at the primary stage of fruiting. Plucking is done by contract labour and the fruits are graded (according to the size) and packed in baskets at garden point. The baskets are brought from garden to *pukka* road point in bullock carts and *tangas* to be loaded in trucks for sending to its destination in secondary and terminal markets at distant places/cities towns. There are also a number of itinerant merchants operating in mango marketing who make sizeable profit at the cost of producers. Advance trading as well as sell and resell of orchards at different stages of fruits is a unique feature of mango marketing in the district.

Wheat:

The progressive cultivators dispose of the stocks in secondary / primary market / *hats* while small and marginal cultivators dispose the produce at farm gate in the village. In primary market / *hats* the farias are very active. They even procure wheat roaming from village to village and sale in the secondary and big primary markets / *hats*.

3.2 Local Market



The wholesalers again dispose of the stock into *atta* for sale in local markets / *hats*. A majority portion of the stock is converted into *atta* by the wholesalers for wholesale trade.

Understanding the importance of Marketing Facilities some important measures taken by the Government of West Bengal are i) Market Intelligence Scheme ii) Agricultural Regulated Market iii) National Grid of Rural Godown iv) Cold Storage facility.

Market Intelligence Scheme is one of the important activities for the Directorate of Agricultural Marketing in Malda district. It has an important role in determining the efficient system of marketing, which not only helps the farmers to get better price for their produce by dispensing their stock at the proper place and the right moment but also helps them to determine their cropping pattern. There are three market intelligence centers in three secondary markets of Malda district: i) Englisbazar ii) Chanchal and iii) Samsi. In each center there is one market level worker who observes the arrival and prices of agricultural commodities and reports the same to the Director of Agricultural Marketing, West-Bengal and Economic and Statistic Advisor to the Govt. of India. The main objective of this scheme is to introduce grading system in regulated market as well as rural areas. This helps the grower of Malda district to get remunerative price by grading their commodities.

But during rounds of field survey it was reported that hardly any farmer gets the benefits of this facility in the interior of the district. The response to the awareness about the scheme was satisfactory but they hardly get any information regarding the price from authorized services. The decision regarding the point of sale and the time of sale and the expected profit is guided by the farmers in network and compulsion of necessity.

Thus it is felt that to increase the effectiveness of *Market Intelligence Scheme* and bring about a shift in this service from a mere a data collection process to dissemination of

information proper network needs to be established who regularly can interact with the farmers on the field.

Agricultural Regulated Market has been playing a major role for the smooth distribution of food crops, oil-seeds and cash crops to meet the supply and demand needs of the farmers, traders and consumers. At present, there are only two regulated market in the district, one in Englishbazar i.e. Diara region and another in Samsi of Tal region. The PS under the purview of English Bazar Regulated Market are English Bazar, Kaliachak, Gazole, Bamongola, Habibpur, Old Malda while Samsi regulated market supports Harishchandrapur, Chanchal, Ratua, Manikchak Police Stations. Thus it is found that the English bazar regulated market supports even the blocks of Barind region which do not have any regulated market of its own. The farmers of Barind region have to travel comparatively longer distance to access the facilities of English bazar regulated market. And to avoid this long distance and its cost implications the farmers of Barind region resort to sell their products to middle men. There is a necessity to develop a regulated market in the Barind region to support the requirements of this region.

National Grid of Rural Godown has been taken up by the Directorate of Marketing with an objective: construction of *godown* in the regulated market areas. In 2000, there were two *godowns* present in the regulated market area of i) Samsi Regulated Market for 1000 metric tones at principal market yard and ii) Chanchal sub-market yard under Samsi Regulated Market Committee of 500 metric tones. In this scheme both the Central and State Government is bearing 50 percent cost and the regulated market committee is bearing the rest 50 percent cost. These *godowns* were prepared with the intention that the farmers who come to sell their produce at regulated market can keep their unsold goods, and sell at a later date. Due to the absence of the rural *godown* scheme in Barind and Diara region farmers are unable to take the advantage of this scheme so either they have to carry their produce back and bring back on a later date which has a cost implication or else sell the produce at lower price. The middle-men take the benefit of this situation and try to exploit the farmers.

So there is an urgent necessity to assess the requirement storage facility in the district and especially in Barind and Diara region. While both the present godown are associated with Samsi Regulated Market, the non availability of godown facility in Englishbazar Regulated Market area is the sign of non-availability of primary infrastructural facility in the region. So it is suggested to develop godown facility in Englishbazar Regulated Market area at he earliest and gradually in Barind region. Table 3.44 shows the achievement of regulated market committee.

Table 3.44: Achievement of Regulated Marketed Committee in Malda District

| | Samsi | | | English Bazar | | |
|---------|-------------------|---------------|-----------|-------------------|---------------|-----------|
| | Total Expenditure | Total Income* | Profit | Total Expenditure | Total Income* | Profit |
| 1995-96 | 2,571,775 | 9,870,737 | 7,298,962 | 898,960 | 5,329,583 | 4,430,623 |
| 1996-97 | 4,138,118 | 12,230,673 | 8,092,555 | 4,574,568 | 7,412,027 | 2,837,459 |
| 1997-98 | 6,835,214 | 14,100,550 | 7,265,336 | 1,631,860 | 6,859,816 | 5,227,956 |

* Includes Market fee, License fee & other income

From the above table it's seen that establishments of Regulated Market is a revenue-generating source. The initial capital investment require to built Regulated Market Committee is the major obstacle in proliferating the marketing facility across the district. But keeping in mind the importance of proper marketing facility in today's world setting up of such regulated market is felt to be of utmost necessity and a good business proposition in the long run.

Another important marketing facility is *Cold Storage* as this marketing infrastructure is necessary for carrying the agricultural produce from production season to consuming periods. Lack of inadequate scientific storage facilities is responsible for heavy losses to the farmers in terms of quality and quantity of crops. Seasonal fluctuation of prices is aggravated in the absence of these facilities. In 2000, Malda district had only one cold storage of 4000 metric tones capacity at Samsi (co-operative sector) in Tal region which

is not sufficient for cultivators of the district. As we find in the recent past that there is a shift in cropping pattern throughout the district and it is more of cash crops, which can be supported by providing cold storage facility. More cold storage facilities are necessary in the district to serve the purpose of the cultivators.

After analyzing the availability of regulated markets we now take a look at the total market availability in the district. Table 3.45 shows the number of market for each block. But due to variability in the in the geographical area of the blocks these

Table 3.45: Market Density in Malda District (1998-99)

| Blocks | Geographical Area (ha) | No. of Market / Hat | Average Area served by a market (ha) |
|---------------------|-------------------------------|----------------------------|---|
| Harishchandrapur I | 17,202 | 25 | 688 |
| Harishchandrapur II | 21,156 | 13 | 1627 |
| Chanchal I | 15,855 | 27 | 587 |
| Chanchal II | 20,550 | 14 | 1468 |
| Ratua I | 22,126 | 18 | 1229 |
| Ratua II | 17,210 | 8 | 2151 |
| Tal | 114,099 | 105 | 1087 |
| Gazole | 50,772 | 20 | 2539 |
| Bamongola | 20,380 | 21 | 970 |
| Habibpur | 39,234 | 19 | 2065 |
| Old Malda | 22,375 | 7 | 3196 |
| Barind | 132,761 | 67 | 1982 |
| English Bazar | 25,190 | 13 | 1938 |
| Manikchak | 31,654 | 17 | 1862 |
| Kaliachak I | 10,350 | 11 | 941 |
| Kaliachak II | 21,377 | 15 | 1425 |
| Kaliachak III | 23,617 | 12 | 1968 |
| Diara | 112,188 | 68 | 1650 |
| Malda | 359,048 | 240 | 1496 |

Source: Directorate of Agricultural Marketing, Malda

figures are not comparable. So we have calculated the geographical area that each markets/huts on an average serves. We find that there is a significant variation: 587

hectare for Chanchal-I while 3196 hectare for Old Malda. To analyse the market density we have considered the reciprocal of these value as if a market serves a lesser area it is considered vis-à-vis others. Considering the area that a market serves for the blocks. We calculated that average and the standard deviation and define the upper limit and lower limit as mean +/- standard deviation. The blocks were then classified as high medium low based on their market density. Map no 3.4 shows the market density at the block level. It is noticed that majority of the majority of the blocks have medium market density Gazole and Old-Malda blocks of Barind region have low market density while Harishchandrapur I, Chanchal I, and Old-Malda I have high market density in Englishbazar block to be high in reality we find it has medium market density. The reason attributed for this is the concentration of market in Malda Town and lower number of huts in the block.

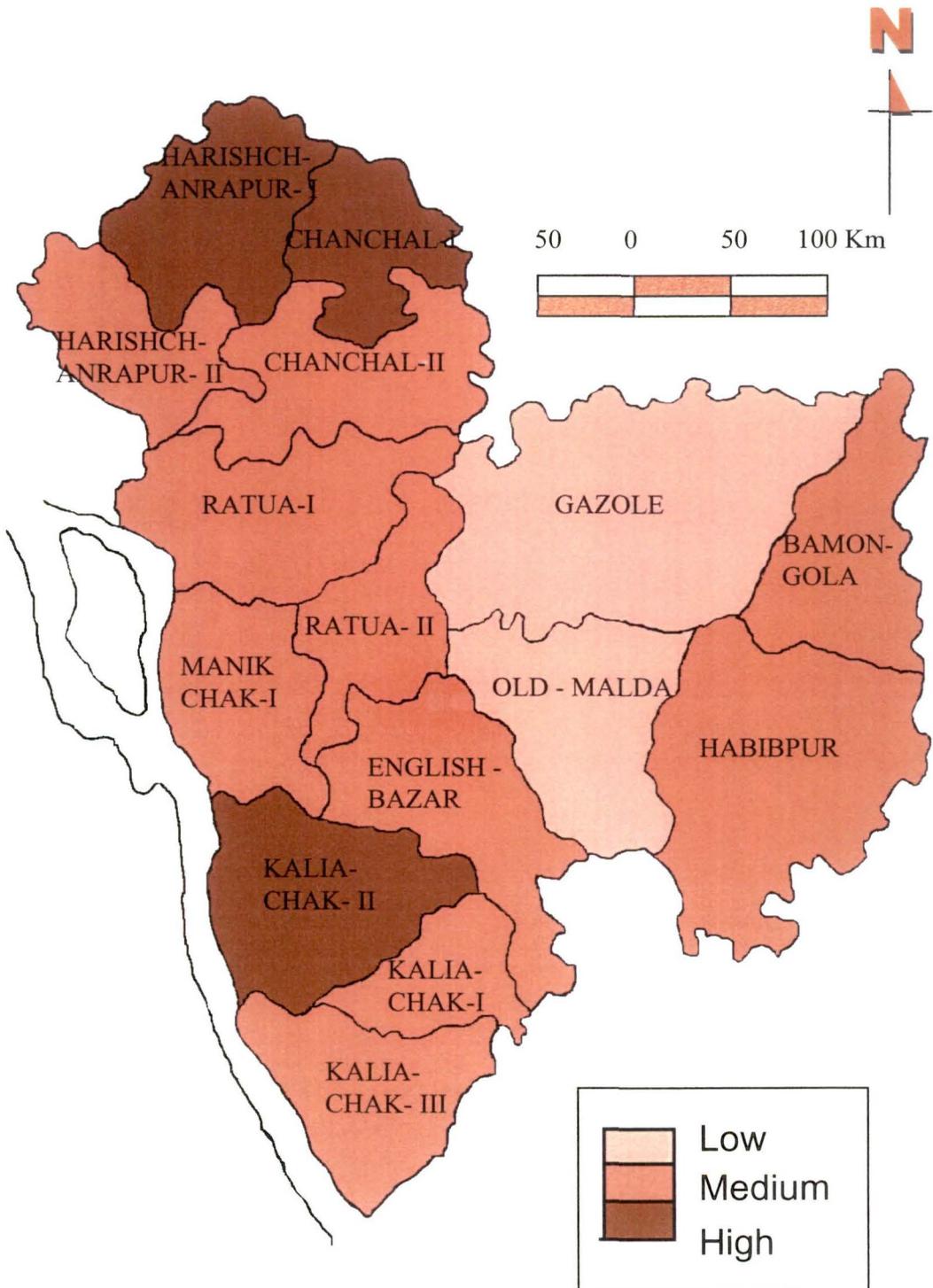
After analysing the market density in the district we now take a look at the point to whom the final product is sold by the primary cultivator. Table 3.46 show the results and we find the farmers are unable to sell the products at points higher up in the chain. A major share (41.8 percent) is consumed by them, while 51.9 percent is sold in the local market. Middle man and Wholesaler play an important role in Diara region as 17.7 percent of the respondents sell their products to them.

Table 3.46: Market for Primary Cultivator in Malda: Region Wise

| | Self consumption | Local market | Middle man | Wholesaler | Others |
|--------------------|------------------|--------------|------------|------------|--------|
| 1. Tal | 40.9% | 56.7% | 0.0% | 0.0% | 2.4% |
| 2. Barind | 48.9% | 49.6% | 0.7% | 0.7% | 0.0% |
| 3. Diara | 33.3% | 49.0% | 10.8% | 6.9% | 0.0% |
| Grand Total | 41.8% | 51.9% | 3.3% | 2.2% | 0.8% |

Derived from Primary Survey result of 367 respondents

Map No: 3.4
Market Density: Block wise
(1998-99)



Therefore we find the marketing infrastructure which plays a vital role in providing of better prices of the produce to the farmers and also the good quality commodities to the consumer at reasonable prices is not developed in Malda district as a whole and Barind region in particular. So there is ample scope to develop these facilities and reap better harvests in the future.

Transport & accessibility:

Transport facility has a direct bearing on the cropping pattern and agricultural development of a region. Whatever a farmer produces at his farm he has to sell a certain portion of his produce in the market to obtain a good return, which needs an effective transport system so that goods may be speedily transported from producer to buyer. In those places where modern means of transportation is inadequate, there the surplus produce is often damaged either by adverse weather or by pests etc. With the help of the efficient transport system people can have access to the nodes or the market centers to avail all the necessary facilities for agriculture.

In Malda district most of the roads connecting the interior of villages with the main roads are *kancha* and narrow. Therefore to run the vehicle for transportation of farm produce is almost impossible. The condition of these roads during rainy season becomes poor. Bullock carts, rikshaw van and horse carts are only communicating system of rural people for transports of inputs.

After the evaluation of the importance of transport and accessibility in agricultural production it has been found that the district of Malda too, there is a variation in these parameters. The road density measured in terms of road length per thousand hectare has been used to measured the variability among different blocks and regions in Malda. While for the district as a whole it is found that the road density is 17.78 Km./th. Hect. The standard deviation in these road densities across the block/region is 8.28 Km./Th. Hect. As +/- standard deviation encompasses majority of the blocks so using the cut off limits of mean +/- 1 standard deviation the blocks has been categorized as

high/medium/low road densities. Map no 3.5 shows the road densities of different blocks. Gazole qualifies to have highest penetration of road as the N.H.34 happens to pass across the block. Manikchak, and Kaliachak III, which happens to be on the extremes of the district have low road density The variability of road density across regions in the district is found to be not pronounced so further analysis of that level is not made.

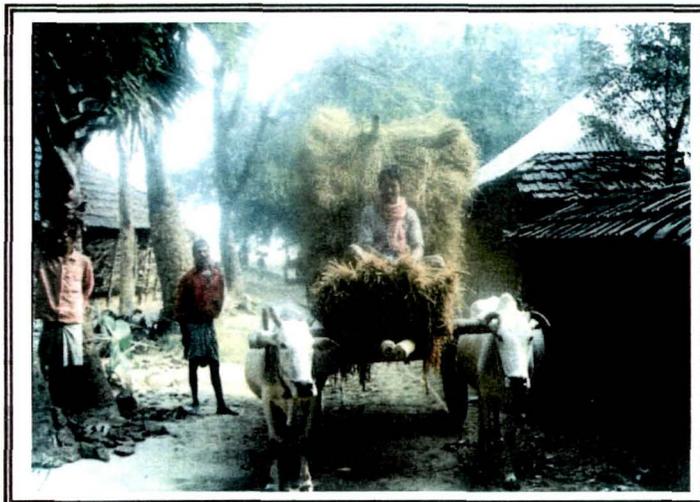
After analysing the market density in the previous sub section we now analyse the accessibility of the markets for purchase of inputs and selling of outputs. Table 3.47 shows the accessibility for the regions. In contrast to the market density we find market accessibility is difficult in Diara region. This is primarily due to the concentration of markets in Malda of Diara region. So farmers from far flung areas of Diara finds it difficult to access these markets.

Table 3.47: Access to Markets in Malda: Region Wise

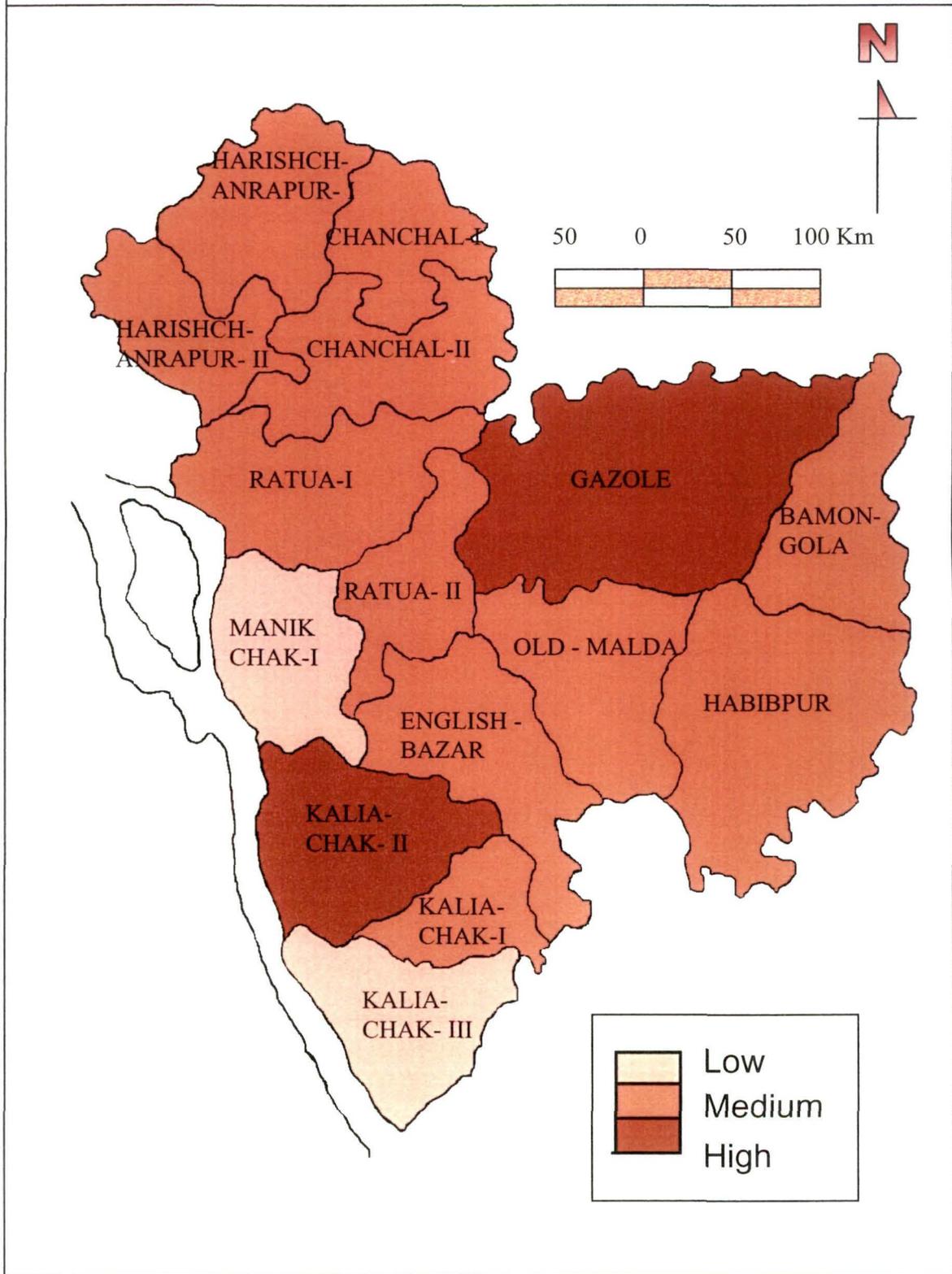
| | Easy | Medium | Difficult | Very Difficult |
|--------------------|-------|--------|-----------|----------------|
| 1. Tal | 56.2% | 19.2% | 6.2% | 18.5% |
| 2. Barind | 49.6% | 23.7% | 17.0% | 9.6% |
| 3. Diara | 29.4% | 3.9% | 55.9% | 10.8% |
| Grand Total | 46.3% | 16.6% | 24.0% | 13.1% |

Derived from Primary Survey result of 367 respondents

3.3 Mode of Transport



Map No: 3.5
Road Density: Block wise
(1998-99)



Credit facilities

In today's capital intensive agriculture, capital required to purchase machinery is high. To enable this institutional help and credit facility is a must. We now take stock of the availability of institutional help and credit facility in the district. Table 3.48 shows the availability of institutional help across the regions of the district.

Table 3.48: Availability of Institutional Help in Malda: Region Wise

| | Easy | Medium | Difficult | Very Difficult |
|--------------------|------|--------|-----------|----------------|
| 1. Tal | 0.0% | 0.0% | 73.2% | 26.8% |
| 2. Barind | 4.4% | 2.2% | 68.1% | 25.2% |
| 3. Diara | 1.0% | 9.8% | 57.8% | 31.4% |
| Grand Total | 1.9% | 3.6% | 67.0% | 27.5% |

Derived from Primary Survey result of 364 respondents

The table provides a clear indication that institutional help is unavailable in the district. 94.5 percent of the respondents are of the opinion that availability of institutional help is either difficult or very difficult. The situation is worse in the Tal region.

Other than institutional help the cultivators can avail the credit from various nationalised and co-operative banks. But on this parameter too the situation is no different. Table 3.49 illustrates the availability of credit facility in the district. It is found that 84.1 percent of the respondents find it difficult to avail credit from the institutions. The situation is worse in Tal region.

Table 3.49: Availability of Credit in Malda: Region wise

| | Very easy | Easy | Medium | Difficult | Very Difficult |
|--------------------|-----------|-------|--------|-----------|----------------|
| 1. Tal | 0.0% | 5.5% | 3.9% | 25.2% | 65.4% |
| 2. Barind | 3.7% | 8.9% | 3.0% | 11.9% | 72.6% |
| 3. Diara | 0.0% | 17.6% | 6.9% | 11.8% | 63.7% |
| Grand Total | 1.4% | 10.2% | 4.4% | 16.5% | 67.6% |

Derived from Primary Survey result of 364 respondents

Thus we find that the credit availability and institutional help is virtually absent in the district. This acts as a great impediment to the overall increase of productivity in the district.